ashington Water Supply Outlook Report June 1, 2008

Resources
Conservation
Service

United States
Department of
Agriculture

Water Supply Outlook Reports
and
Federal - State - Private
Cooperative Snow Surveys

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How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

Washington
Water Supply Outlook

June 2008

General Outlook

Finally we get runoff. Unfortunately due to very high temperatures, if only for a few days, significant flooding was experienced on a few streams in the state. Below average precipitation during May most likely helped curtail worse flooding. Even with the mercury pushing near triple digits the average temperatures for May remained near to below normal except in the Okanagan and down through the Yakima area where above normal temperatures prevailed. Record high snowpack remains in some basins as well; driving streamflow forecast projections higher than previously thought. Weather forecasts for the next three months are calling for continued cool temperatures with best chances of near to slightly below average precipitation. This will be the final Water Supply Outlook Report published for this water-year. Additional data and information is always available from our web pages. http://www.wa.nrcs.usda.gov/snow/ or http://www.wcc.nrcs.usda.gov/wcc.html

Snowpack

The June 1 statewide SNOTEL readings were 215% of average. The Methow River snow surveys reported the lowest readings at 79% of average. Readings in the Cedar River Basin in King County reported the highest at 1281% of average. Westside averages from SNOTEL, and June 1 snow surveys, included the North Puget Sound river basins with 146% of average, the Central Puget river basins with 1165%, and the Lewis-Cowlitz basins with 314% of average. Snowpack along the east slopes of the Cascade Mountains included the Yakima area with 157% and the Wenatchee area with 99%. Snowpack in the Spokane River Basin was at 177% and the Walla Walla River Basin had 705% of average. Extremely high snowpack this spring can be attributed mostly to cooler than average temperatures which have prevented or reduced normal melt.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane	600	177
Newman Lake	0	0
Pend Oreille	285	152
Okanogan	139	88
Methow	110	79
Conconully Lake	0	0
Wenatchee	140	108
Chelan	148	90
Upper Yakima	271	185
Lower Yakima	205	129
Ahtanum Creek	0	97
Walla Walla	0	705
Lower Snake	889	209
Cowlitz	243	200
Lewis	581	376
White	161	122
Green	482	294
Puyallup	202	161
Cedar	0	1281
Snoqualmie	328	276
Skykomish	710	237
Skagit	105	109
Baker	N/A	N/A
Nooksack	173	183
Olympic Peninsula	319	281

Precipitation

During the month of May, the National Weather Service and Natural Resources Conservation Service climate stations reported below average precipitation totals in all but two Washington river basins. The highest percent of average in the state was at Grouse Camp SNOTEL which reported 267% of average for a total of 3.9 inches. The average for this site is 1.46 inches for May. Conversely, the lowest percent of average was at Salmon Meadows SNOTEL with only 18% of average for a total of 0.5 inches of precipitation.

RIVER BASIN	MAY PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane	63	108
Colville-Pend Oreille	63	99
Okanogan-Methow	49	97
Wenatchee-Chelan	84	93
Upper Yakima	80	97
Lower Yakima	86	99
Walla Walla	101	105
Lower Snake	84	109
Cowlitz-Lewis	76	101
White-Green-Puyallup	104	98
Central Puget Sound	91	108
North Puget Sound	70	95
Olympic Peninsula	41	87

Reservoir

Seasonal reservoir levels in Washington vary greatly due to specific watershed management practices required in preparation for, spring snow melt, irrigation season, fisheries management, power generation, municipal demands and flood control. June 1 storage should seasonally normal increases for the month of May. Reservoir storage in the Yakima Basin was 685,000-acre feet, 94% of average for the Upper Reaches and 206,000-acre feet or 101% of average for Rimrock and Bumping Lakes. Storage at the Okanogan reservoirs was 101% of average for June 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 488,000 acre feet, 181% of average and 205% of capacity; Chelan Lake, 472,000-acre feet, 100% of average and 70% of capacity; and the Skagit River reservoirs at 99% of average and 74% of capacity.

BASIN	PERCENT OF CAPACITY	CURRENT STORAGE AS PERCENT OF AVERAGE
Spokane	205	181
Colville-Pend Oreille	40	46
Okanogan-Methow	91	101
Wenatchee-Chelan	70	100
Upper Yakima	82	94
Lower Yakima	89	101
Lower Snake	80	91
North Puget Sound	74	99

For more information contact your local Natural Resources Conservation Service office.

Streamflow

Streamflow forecasts vary from 206% of average for the Cedar River at Cedar Falls to 80% of average for the Methow and Okanogan rivers. June-September forecasts for some Western Washington streams include the Cedar River near Cedar Falls, 177%; White River, 125%; and Skagit River, 115%. Some Eastern Washington streams include the Yakima River near Parker, 114%: Wenatchee River at Plain, 122%; and Spokane River near Post Falls, 133%. Volumetric forecasts are developed using current, historic and average snowpack, precipitation and streamflow data collected and coordinated by organizations cooperating with NRCS.

Statewide May streamflows were mostly above average due to a warming spell which started seasonally normal snow melt The S.F. Walla Walla River had the highest reported flows with 266% of average. The Kettle River near Laurier with 100% of average was the lowest in the state. Other streamflows were the following percentage of average as reported by the River Forecast Center: the Cowlitz at Castle Rock, 148%; the Spokane at Spokane, 177%; the Columbia below Rock Island Dam, 116%; and the Cle Elum near Roslyn, 144%.

BASIN	PERCENT OF AVERAGE (50 PERCENT CHANCE OF EXCEEDENCE)
Spokane	106-133
Colville-Pend Oreille	97-133
Okanogan-Methow	80-85
Wenatchee-Chelan	93-122
Upper Yakima	118-128
Lower Yakima	106-129
Walla Walla	107-109
Lower Snake	108-135
Cowlitz-Lewis	101-140
White-Green-Puyallup	125-135
Central Puget Sound	155-206
North Puget Sound	115-116
Olympic Peninsula	124-133

STREAM	PERCENT OF AVERAGE MAY STREAMFLOWS
Pend Oreille Below Box Canyon	130
Kettle at Laurier	100
Columbia at Birchbank	111
Spokane at Long Lake	164
Similkameen at Nighthawk	111
Okanogan at Tonasket	112
Methow at Pateros	134
Chelan at Chelan	136
Wenatchee at Pashastin	122
Yakima at Cle Elum	150
Yakima at Parker	161
Naches at Naches	155
Grande Ronde at Troy	164
Snake below Lower Granite Dam	118
SF Walla Walla near Milton Freewater	266
Columbia River at The Dalles	117
Lewis at Ariel	179
Cowlitz below Mayfield Dam	154
Skagit at Concrete	141
Dungeness near Sequim	164

For more information contact your local Natural Resources Conservation Service office.

BASIN SUMMARY OF SNOW COURSE DATA

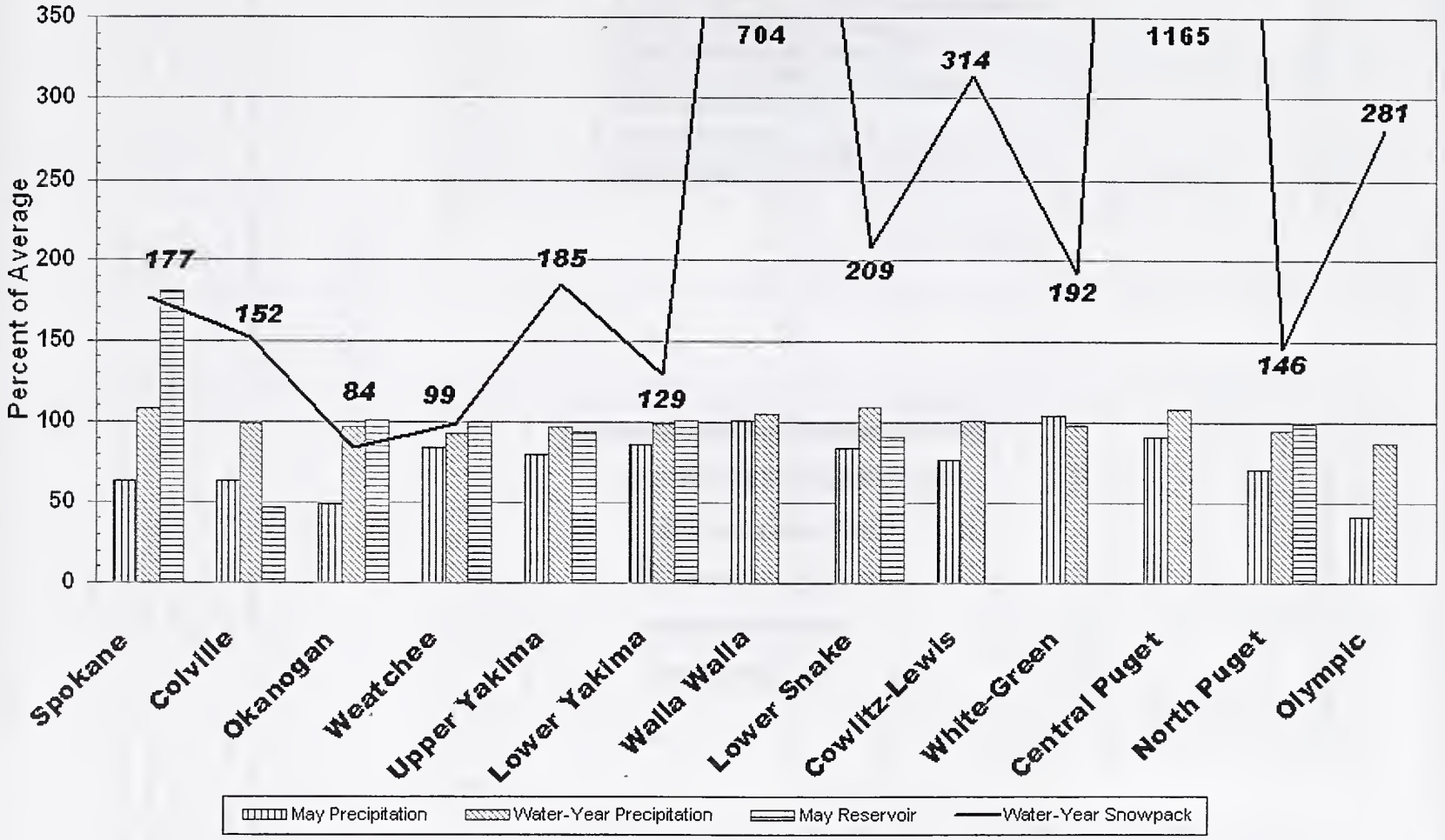
JUNE 2008

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
BADGER PASS SNOTEL	6900	6/01/08	78	41.7	18.1	22.9
BARKER LAKES SNOTEL	8250	6/01/08	41	15.3	7.6	9.5
BASIN CREEK SNOTEL	7180	6/01/08	0	.0	.0	4.1
BEAVER CREEK TRAIL	2200	5/30/08	0	.0	.0	--
BEAVER PASS	3680	5/31/08	40	20.1	18.4	--
BEAVER PASS SNOTEL	3630	6/01/08	49	26.4	22.6	16.8
BLACK PINE SNOTEL	7100	6/01/08	0	.0	.0	1.9
BLACKWALL PILL CAN.	6370	6/01/08	---	19.8	18.7	--
BLEWETT PASS#2SNOTEL	4270	6/01/08	0	.0	.0	.0
BRENDA MINE CAN.	4450	6/01/08	---	.0	.0	2.7
BROWN TOP AM	6000	5/30/08	90	49.0	58.6	--
BUMPING LAKE (NEW)	3400	5/30/08	0	.0	--	--
BUMPING RIDGE SNOTEL	4600	6/01/08	28	14.5	.0	11.6
BUNCHGRASS MDWSNOTEL	5000	6/01/08	23	9.0	.0	9.7
BURNT MOUNTAIN PIL	4200	6/01/08	53	22.5	.0	.4
CAYUSE PASS SNOTEL	5240	6/01/08	105	58.4	33.9	--
CHICKEN CREEK	4060	6/01/08	---	4.2E	.0	.0
COMBINATION SNOTEL	5600	6/01/08	0	.0	.0	.0
COPPER BOTTOM SNOTEL	5200	6/01/08	0	.0	.0	.0
CORRAL PASS SNOTEL	6000	6/01/08	70	31.7	24.8	23.1
COUGAR MTN. SNOTEL	3200	6/01/08	38	20.7	.0	1.5
DALY CREEK SNOTEL	5780	6/01/08	0	.0	.0	.0
DEVILS PARK	5900	5/30/08	59	30.4	36.6	--
DISCOVERY BASIN	7050	5/28/08	8	2.4	2.0	2.4
DIX HILL	6400	6/01/08	0	.0	--	--
DOMMERIE PLATS	2200	5/30/08	0	.0	--	--
DUNGENESS SNOTEL	4100	6/01/08	0	.0	.0	.0
ELBOW LAKE SNOTEL	3200	6/01/08	---	29.5	.1	19.8
EMERY CREEK SNOTEL	4350	6/01/08	0	.0	.0	.0
ENDERBY CAN.	5800	5/31/08	83	42.0	28.0	37.8
FISH LAKE	3370	5/30/08	10	5.2	--	--
FISH LAKE SNOTEL	3370	6/01/08	16	6.6	.0	7.5
FLATTOP MTN SNOTEL	6300	6/01/08	95	43.2	31.0	36.5
FREEZEOUT CK. TRAIL	3500	5/30/08	0	.0	.0	--
FROHNER MDWS SNOTEL	6480	6/01/08	0	.0	.0	.7
GRASS MOUNTAIN #2	2900	5/30/08	0	.0	--	--
GRAVE CRK SNOTEL	4300	6/01/08	0	.0	.0	.0
GREEN LAKE SNOTEL	6000	6/01/08	18	6.6	.0	6.6
GROUSE CAMP SNOTEL	5380	6/01/08	0	.0	.0	.2
HAMILTON HILL CAN.	4550	5/29/08	0	.0	--	--
HAND CREEK SNOTEL	5030	6/01/08	0	.0	.0	.0
HARTS PASS SNOTEL	6500	6/01/08	48	24.9	28.2	29.2
HARTS PASS	6500	5/30/08	62	34.4	31.7	--
HELL ROARING DIVIDE	5770	5/28/08	51	26.3	10.4	10.8
HERRIG JUNCTION	4850	5/23/08	49	24.3	4.3	5.4
HIGH RIDGE SNOTEL	4920	6/01/08	19	15.4	.0	1.2
HOODOO BASIN SNOTEL	6050	6/01/08	90	43.6	17.5	28.4
HUCKLEBERRY SNOTEL	2000	6/01/08	0	.0	.0	.0
HUMBOLDT GLCH SNOTEL	4250	6/01/08	---	6.5	.0	.0
JUNE LAKE SNOTEL	3200	6/01/08	---	74.9	.0	10.1
KRAPT CREEK SNOTEL	4750	6/01/08	0	.0	.0	.0
LESTER CREEK	3100	5/30/08	56	26.4	--	--
LOLO PASS SNOTEL	5240	6/01/08	27	15.8	.0	4.9
LONE PINE SNOTEL	3800	6/01/08	86	51.9	13.2	18.4
LOOKOUT SNOTEL	5140	6/01/08	31	15.4	.0	8.0
LOST HORSE SNOTEL	5000	6/01/08	0	.0	.0	.2
LOST LAKE SNOTEL	6110	6/01/08	---	46.9	21.9	41.5
LUBRECHT SNOTEL	4680	6/01/08	0	.0	.0	.0
LYMAN LAKE SNOTEL	5900	6/01/08	79	44.8	48.8	50.8
LYNN LAKE	4000	5/30/08	91	45.0	--	--
MARTEN RIDGE SNOTEL	3520	6/01/08	88	58.9	25.0	--
MEADOWS CABIN	1900	5/31/08	0	.0	.0	--
MEADOWS PASS SNOTEL	3240	6/01/08	57	25.8	.0	.9
M P NOOKSACK SNOTEL	4980	6/01/08	105	53.1	51.3	--
MICA CREEK SNOTEL	4510	6/01/08	25	14.6	.0	.0
MINERS RIDGE SNOTEL	6200	6/01/08	71	35.3	10.2	42.5
MISSEZULA MTN CAN.	5080	5/30/08	0	.0	--	--
MISSION CREEK CAN.	5840	6/01/08	---	13.2	1.5	13.0
MORRISSEY RIDGE CAN.	6100	6/01/08	---	9.6	.0	--
MORSE LAKE SNOTEL	5400	6/01/08	75	37.5	20.5	33.6
MOSES MTN SNOTEL	4800	6/01/08	0	.0	.1	.1
MOSQUITO RDG SNOTEL	5200	6/01/08	---	27.2	.0	11.0
MOUNT CRAG SNOTEL	4050	6/01/08	45	25.3	4.7	7.8
MT. KOBAU CAN.	5500	5/31/08	0	.0	.0	5.2
MOWICH SNOTEL	3150	6/01/08	0	.0	.0	.0
MOUNT GARDNER SNOTEL	2860	6/01/08	20	13.4	.0	.0
N.P. ELK CR SNOTEL	6250	6/01/08	0	.0	.0	.6
NEVADA RIDGE SNOTEL	7020	6/01/08	16	6.9	.0	3.4
NEW HOZOMEEN LAKE	2800	5/30/08	0	.0	.0	--
NEZ PERCE CMP SNOTEL	5650	6/01/08	2	.9	.0	.3
NOISY BASIN SNOTEL	6040	6/01/08	68	32.3	20.9	30.1
NORTH FORK JOCKO	6330	5/31/08	56	30.4	13.4	23.3
OLALLIE MDWS SNOTEL	3960	6/01/08	111	61.9	27.0	31.8
OPHIR PARK	7150	6/01/08	6	2.8	--	--
PARADISE PARK SNOTEL	5500	6/01/08	144	90.7	57.4	61.6
PARK CK RIDGE SNOTEL	4600	6/01/08	30	19.5	3.5	11.5
PETERSON MDW SNOTEL	7200	6/01/08	13	3.9	3.6	2.7
PIGTAIL PEAK SNOTEL	5900	6/01/08	100	55.8	26.7	39.9
PIKE CREEK SNOTEL	5930	6/01/08	50	19.2	.0	7.3
POPE RIDGE SNOTEL	3540	6/01/08	0	.0	.0	.0
POTATO HILL SNOTEL	4500	6/01/08	47	22.2	.0	2.7
QUARTZ PEAK SNOTEL	4700	6/01/08	10	4.7	.0	.0
RAGGED MTN SNOTEL	4210	6/01/08	0	.0	.0	--
RAINY PASS SNOTEL	4780	6/01/08	41	17.1	13.9	24.3
RAINY PASS	4780	5/30/08	55	30.0	22.6	--
REX RIVER SNOTEL	1900	6/01/08	---	51.1	.0	6.1
ROCKER PEAK SNOTEL	8000	6/01/08	37	13.5	5.5	11.7
SADDLE MTN SNOTEL	7900	6/01/08	50	20.2	5.3	16.3
SALMON MDWS SNOTEL	4500	6/01/08	0	.0	.0	.0
SASSE RIDGE SNOTEL	4200	6/01/08	20	11.5	.0	5.9
SAVAGE PASS SNOTEL	6170	6/01/08	44	19.3	.0	10.4
SAWMILL RIDGE	4700	5/30/08	41	19.7	--	--
SAWMILL RIDGE SNOTEL	4630	6/01/08	50	36.0	3.0	--
SENTINEL BT SNOTEL	4920	6/01/08	0	.0	.0	--
SHEEP CANYON SNOTEL	4050	6/01/08	---	65.3	8.1	13.7
SHERWIN SNOTEL	3200	6/01/08	---	.0	.0	.0
SKALKAHO SNOTEL	7260	6/01/08	29	12.9	.0	14.6
SKOOKUM CREEK SNOTEL	3920	6/01/08	61	43.0	.0	1.5
SOURDOUGH GUL SNOTEL	4000	6/01/08	0	.0	.0	--
SPENCER MDW SNOTEL	3400	6/01/08	69	42.4	.0	3.0
SPIRIT LAKE SNOTEL	3100	6/01/08	---	.0	.0	.0
SPRUCE SPGS SNOTEL	5700	6/01/08	0	.0	.0	--
STAHL PEAK SNOTEL	6030	6/01/08	71	34.7	31.5	28.0
STAMPEDE PASS SNOTEL	3860	6/01/08	70	38.3	16.7	18.6
STEVENS PASS SNOTEL	4070	6/01/08	45	21.3	3.0	9.0
STRYKER BASIN	6180	5/23/08	74	37.9	15.8	19.4
SUNSET SNOTEL	5540	6/01/08	---	16.0	.0	13.5
SURPRISE LKS SNOTEL	4250	6/01/08	91	46.2	15.9	19.0
SWAMP CREEK SNOTEL	4000	6/01/08	0	.0	.0	.0
THUNDER BASIN SNOTEL	4200	6/01/08	26	18.1	6.2	9.3
THUNDER BASIN	4200	5/31/08	22	10.9	10.4	--
TINKHAM CREEK SNOTEL	3000	6/01/08	73	36.5	.5	2.9
TOUCHET SNOTEL	5530	6/01/08	6	10.7	.0	2.5
TUNNEL AVENUE	2450	5/29/08	18	9.3	--	--
TV MOUNTAIN	6800	5/31/08	16	7.1	2.0	6.8
TWELVEMILE SNOTEL	5600	6/01/08	0	.0	.0	.4
TWIN CAMP	4100	5/30/08	22	10.8	--	--
TWIN LAKES SNOTEL	6400	6/01/08	68	36.9	1.8	22.3
UPPER WHEELER SNOTEL	4400	6/01/08	0	.0	.0	.0
WARM SPRINGS SNOTEL	7800	6/01/08	46	18.9	15.5	17.0
WATERHOLE SNOTEL	5000	6/01/08	65	38.8	15.4	15.0
WELLS CREEK SNOTEL	4200	6/01/08	48	23.1	9.7	8.9
WHITE PASS ES SNOTEL	4500	6/01/08	27	13.5	.0	5.6
WHITE ROCKS MTN CAN.	7200	5/30/08	9	3.7	2.8	7.4

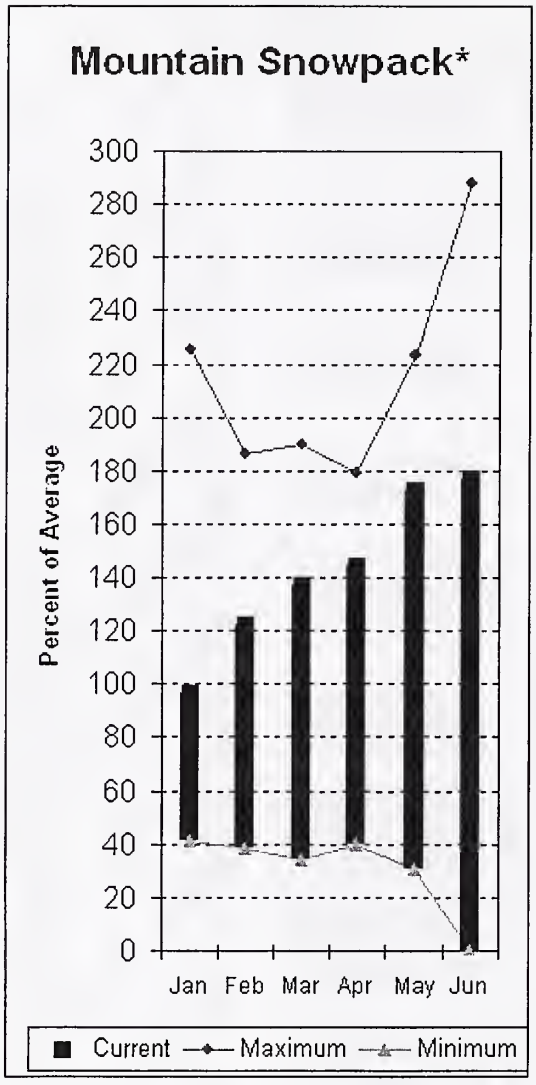
NRCS Natural Resources Conservation Service

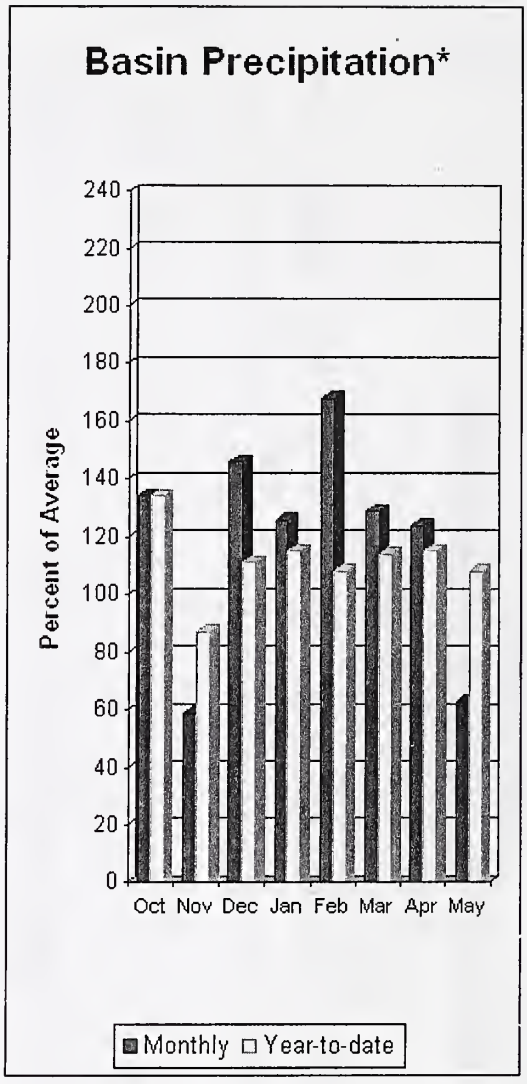
June 1, 2008 - Snowpack, Precipitation and Reservoir Conditions at a Glance

(Water Year = October 1, 2007 - Current Date)



Spokane River Basin





*Based on selected stations

The June-September forecasts for runoff within the Spokane River Basin are 133% of average near Post Falls and 128% at Long Lake. The Chamokane River near Long Lake forecasted to have 106% of average flows for the July-August period. The forecast is based on a basin snowpack that is 177% of average and precipitation that is 108% of average for the water year. Precipitation for May was below normal at 63% of average. Streamflow on the Spokane River at Long Lake was 164% of average for May. June 1 storage in Coeur d'Alene Lake was 488,000-acre feet, 181% of average and 205% of capacity. Snowpack at Quartz Peak SNOTEL still had 4.7 inches of snow water content on June 1st. Normally the site would have melted out in late May. Average temperatures in the Spokane basin were 2 degrees above normal for May and near normal for the water year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2008

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SPOKANE near Post Falls (2)	MAY-JUL	2180	2350	2470	148	2590	2760	1670
	MAY-SEP	2320	2480	2600	147	2720	2880	1770
SPOKANE at Long Lake (2)	MAY-JUL	2280	2550	2730	143	2910	3180	1910
	MAY-SEP	2550	2830	3020	142	3210	3490	2130
CHAMOKANE CREEK near Long Lake	MAY-AUG	5.8	8.7	10.7	105	12.7	15.6	10.2
	JUL-AUG	2.6	3.3	3.7	106	4.1	4.8	3.5

SPOKANE RIVER BASIN
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

SPOKANE RIVER BASIN
Watershed Snowpack Analysis - May 1, 2008

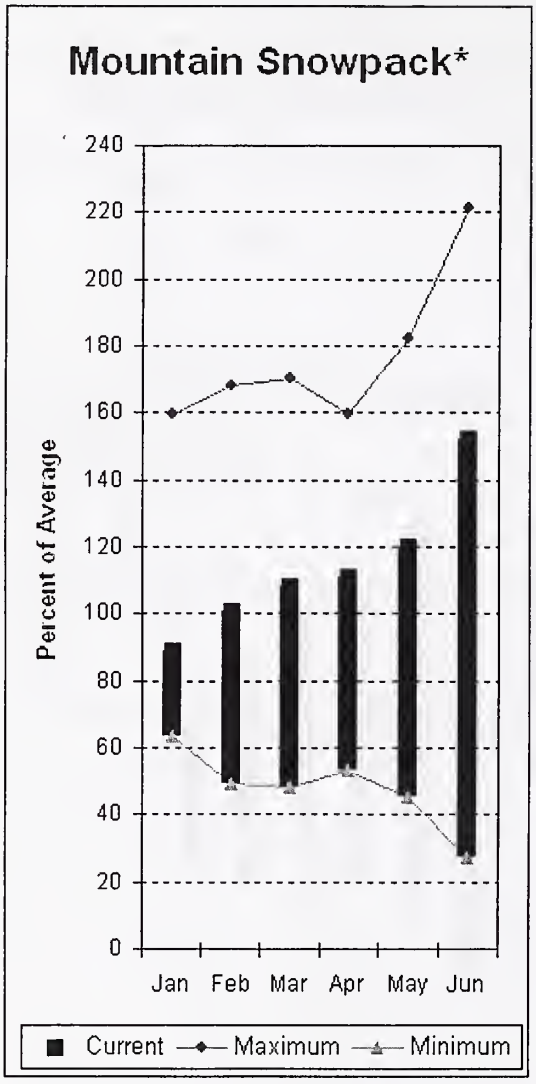
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
SPOKANE RIVER	9	319	162
NEWMAN LAKE	1	2037	238

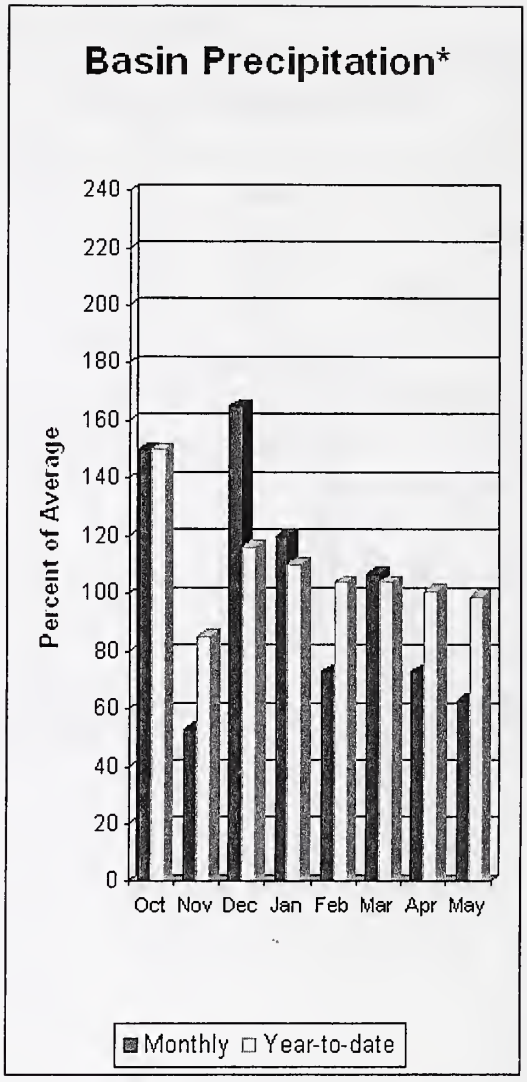
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level.
The value listed under 70% is actually a 75% exceedance level.

Colville - Pend Oreille River Basins





*Based on selected stations

The June–September average forecast for the Kettle River streamflow is 97%, Colville at Kettle Falls is 108% and Priest River near the town of Priest River is 133%. May streamflow was 130% of average on the Pend Oreille River, 111% on the Columbia at Birchbank and 100% on the Kettle River. June 1 snow cover was 152% of average in the Pend Oreille Basin River Basin. Bunchgrass Meadows SNOTEL site had 9 inches of snow water on the snow pillow. Normally Bunchgrass would have 9.7 inches on June 1. Precipitation during May was 63% of average, bringing the year-to-date precipitation to 99% of average. Reservoir storage in the basin, including Lake Pend Oreille and Priest Lake was 46% of normal. Average temperatures were 1-2 degrees below normal for May and 3-4 degrees below normal for the water year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2008

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
PEND OREILLE Lake Inflow (2)	MAY-JUL	11700	12000	12000	113	12400	12700	10600
	MAY-SEP	12700	13000	13200	112	13400	13700	11800
PRIEST near Priest River (1,2)	MAY-JUL	670	775	825	134	875	980	615
	MAY-SEP	740	845	895	134	945	1050	670
PEND OREILLE bl Box Canyon (2)	MAY-JUL	10300	11400	12200	114	13000	14100	10700
	MAY-SEP	11500	12600	13400	113	14200	15300	11900
COLVILLE at Kettle Falls	MAY-JUL	61	79	92	117	105	123	79
	MAY-SEP	69	92	107	116	122	145	92
KETTLE near Laurier	MAY-JUL	1240	1480	1640	107	1800	2040	1540
	MAY-SEP	1310	1570	1740	106	1910	2170	1640
COLUMBIA at Birchbank (1,2)	MAY-JUL	27800	31000	32100	102	34000	37200	31600
	MAY-SEP	35400	39300	41100	102	42900	46800	40200
COLUMBIA at Grand Coulee Dm (1,2)	MAY-JUL	43700	49300	50500	108	51700	57300	46600
	MAY-SEP	53300	58800	60100	106	61400	66900	56700

COLVILLE - PEND OREILLE RIVER BASINS
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

COLVILLE - PEND OREILLE RIVER BASINS
Watershed Snowpack Analysis - May 1, 2008

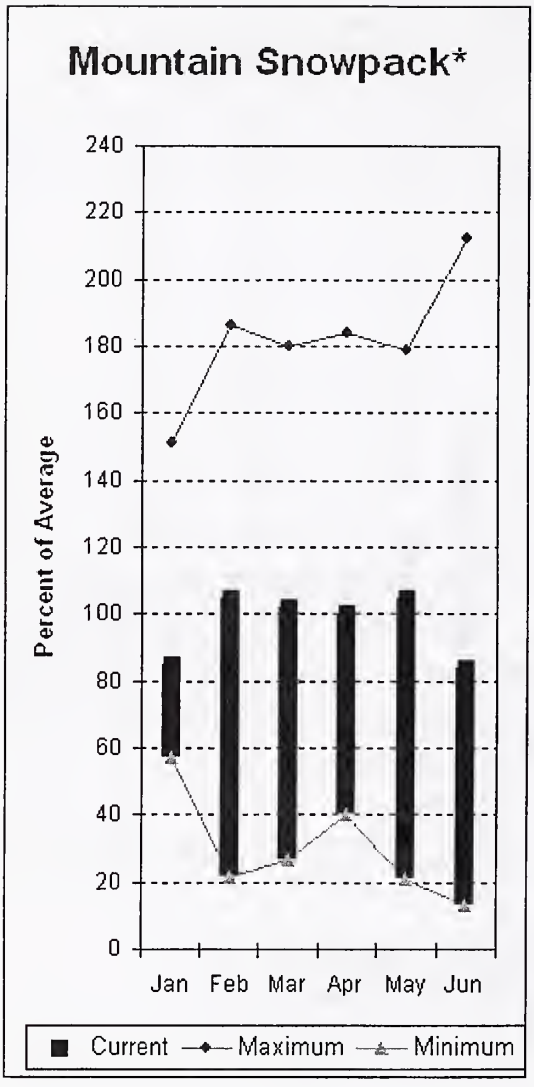
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
COLVILLE RIVER	0	0	0
PEND OREILLE RIVER	10	219	139
KETTLE RIVER	3	219	120

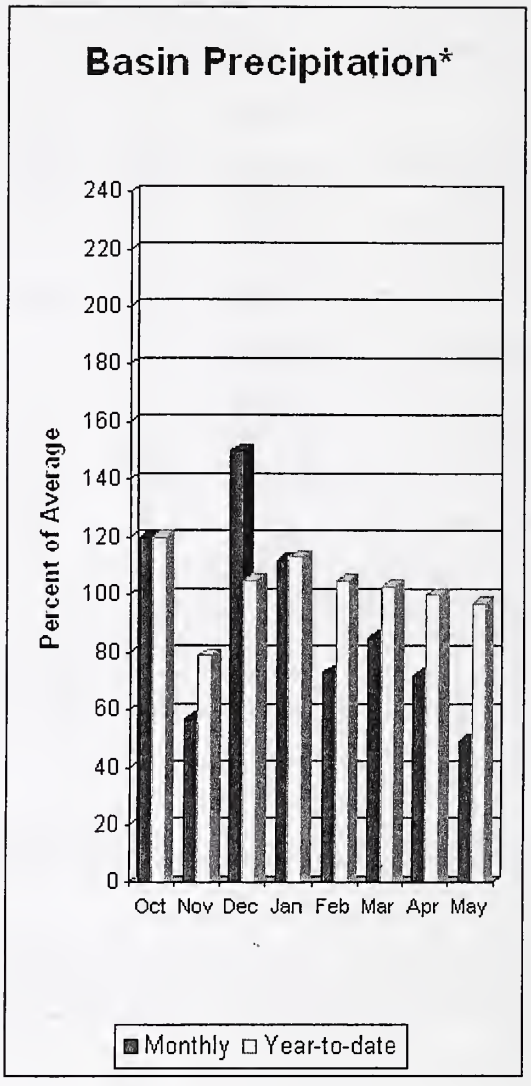
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level.
The value listed under 70% is actually a 75% exceedance level.

Okanogan - Methow River Basins





*Based on selected stations

Summer runoff average forecast for the Okanogan River is 80%, Similkameen River is 85% and Methow River is 81%. Salmon Creek should be expected to have slightly below normal flows this summer as well. June 1 snow cover on the Okanogan was 88% of average and the Methow was 79%. May precipitation in the Okanogan-Methow was 49% of average, with precipitation for the water year at 97% of average. May streamflow for the Methow River was 134% of average, 112% for the Okanogan River and 111% for the Similkameen. Snow-water content at Harts Pass SNOTEL was 24.9inches. Average for this site is 29.2 inches on June 1. Combined storage in the Conconully Reservoirs was 21,000-acre feet, which is 91% of capacity and 101% of the June 1 average. Temperatures were 2-4 degrees above normal for May and 2 degrees below for the water year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2008

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Similkameen R nr Nighthawk (1)	MAY-JUL	875	1040	1120	92	1200	1370	1220
	MAY-SEP	935	1120	1210	92	1300	1480	1320
Okanogan R nr Tonasket (1)	MAY-JUL	870	1180	1320	94	1460	1770	1400
	MAY-SEP	990	1340	1500	94	1660	2010	1590
Okanogan R at Malott (1)	MAY-JUL	890	1210	1360	94	1510	1830	1449
	MAY-SEP	1010	1370	1540	94	1710	2070	1641
Methow R nr Pateros	MAY-JUL	595	670	720	89	770	845	810
	MAY-SEP	650	725	780	89	835	910	880

OKANOGAN - METHOW RIVER BASINS
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
SALMON LAKE		NO REPORT		
CONCONULLY RESERVOIR		NO REPORT		

OKANOGAN - METHOW RIVER BASINS
Watershed Snowpack Analysis - May 1, 2008

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
OKANOGAN RIVER	17	122	113
OMAK CREEK	1	194	116
SANPOIL RIVER	0	0	0
SIMILKAMEEN RIVER	4	106	97
TOATS COULEE CREEK	0	0	0
CONCONULLY LAKE	1	0	167
METHOW RIVER	5	100	96

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
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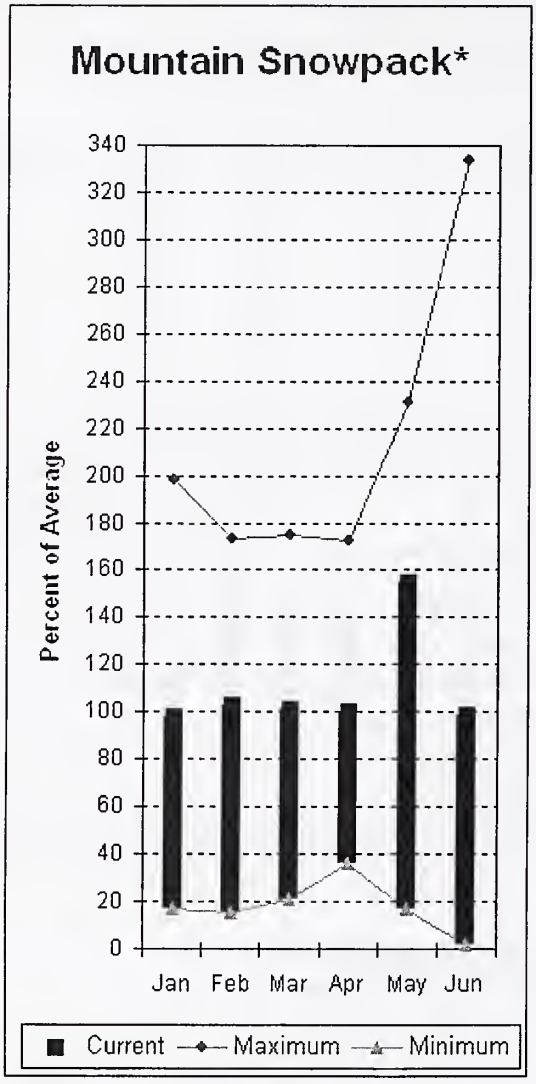
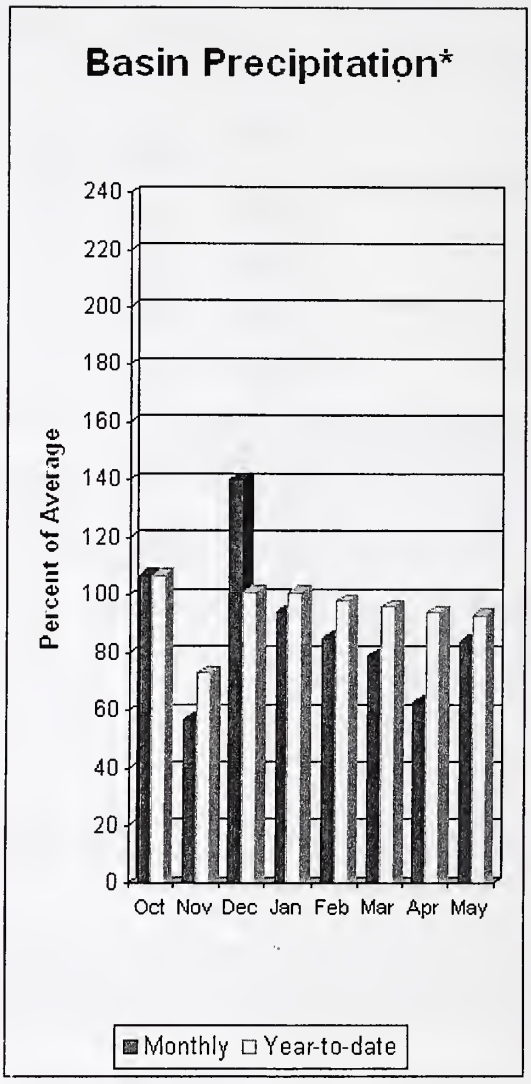
The value listed under 70% is actually a 75% exceedance level.

Wenatchee - Chelan River Basins





*Based on selected stations

Precipitation during May was 84% of average in the basin and 93% for the year-to-date. Runoff for Entiat River is forecast to be 95% of average for the summer. The June-September average forecast for Chelan River is 93%, Wenatchee River at Plain is 122%, Stehekin River is 93% and Icicle Creek is 121%. Stemilt and Squilchuck creeks should have near average flows as well. May average streamflows on the Chelan River were 136% and on the Wenatchee River 122%. June 1 snowpack in the Wenatchee River Basin was 108% of average and the Chelan, 90%. The Entiat and Stemilt Creek survey sites had melted prior to June 1. Reservoir storage in Lake Chelan was 472,000-acre feet, 100% of June 1 average and 70% of capacity. Lyman Lake SNOTEL had the most snow water with 44.8 inches of water. This site would normally have 50.8 inches on June 1. Temperatures were 1-2 degrees above for May and 2 degrees below for the water year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2008

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Stehekin R at Stehekin	MAY-JUL	510	575	620	100	665	730	620
	MAY-SEP	640	705	745	100	785	850	745
Chelan R at Chelan (2)	MAY-JUL	830	885	920	101	955	1010	910
	MAY-SEP	970	1020	1060	101	1100	1150	1050
Entiat R nr Ardenvoir	MAY-JUL	171	185	195	100	205	220	195
	MAY-SEP	190	205	215	100	225	240	215
Wenatchee R at Plain	MAY-JUL	875	955	1010	112	1070	1150	905
	MAY-SEP	995	1080	1140	112	1200	1290	1020
Icicle Ck nr Leavenworth	MAY-JUL	245	270	285	106	300	325	270
	MAY-SEP	270	295	315	105	335	360	300
Wenatchee R at Peshastin	MAY-JUL	1230	1340	1410	113	1480	1590	1250
	MAY-SEP	1400	1510	1590	113	1670	1780	1410
Columbia R bl Rock Island Dam (1,2)	MAY-JUL	49800	54300	56300	110	58300	62800	51100
	MAY-SEP	58600	64000	66400	108	68800	74200	61600

WENATCHEE - CHELAN RIVER BASINS
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
CHELAN LAKE	676.1	158.3	426.9	265.6

WENATCHEE - CHELAN RIVER BASINS
Watershed Snowpack Analysis - May 1, 2008

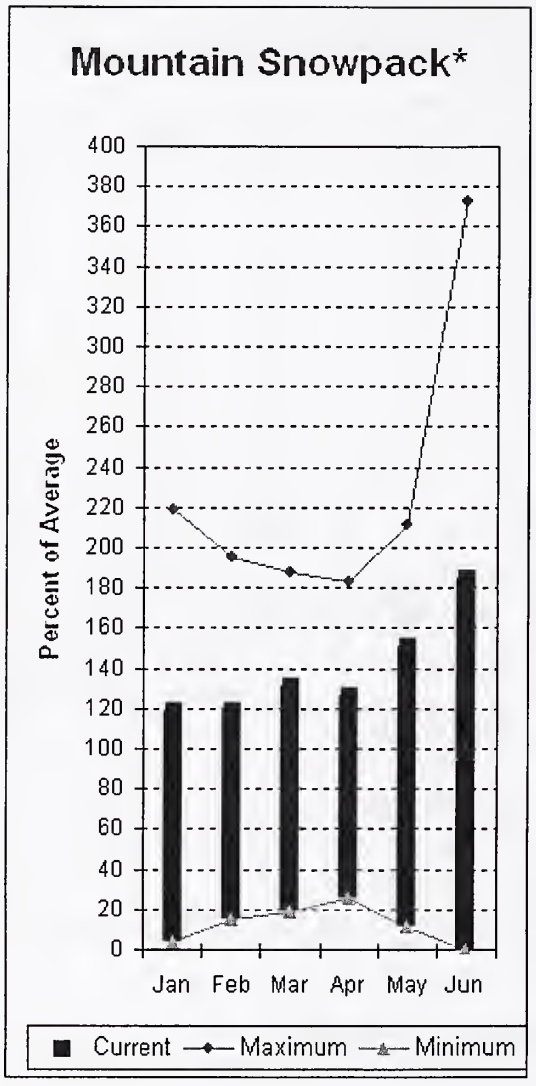
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
CHELAN LAKE BASIN	5	104	99
ENTIAT RIVER	1	262	199
WENATCHEE RIVER	8	159	117
STEMILT CREEK	1	312	205
COLOCKUM CREEK	1	0	60

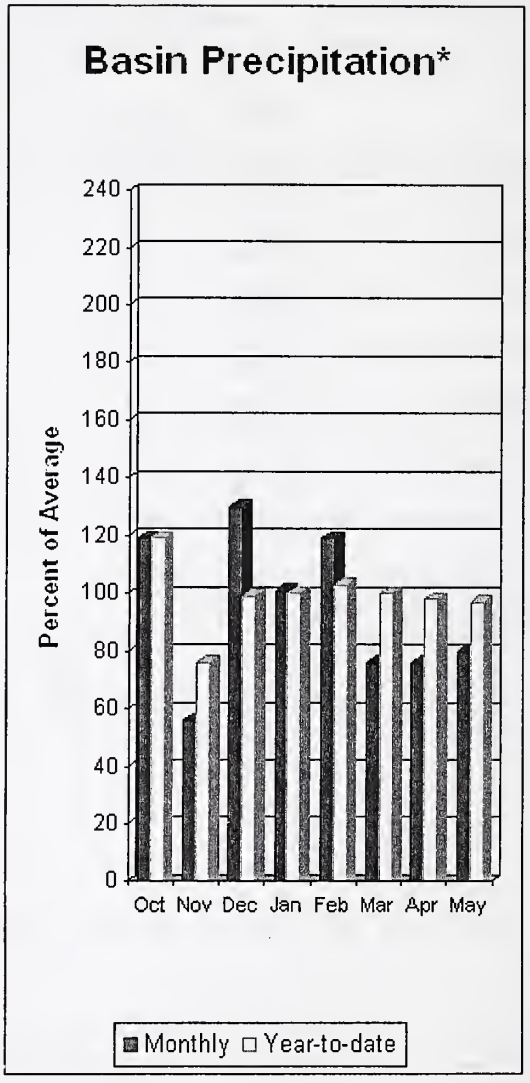
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level. The value listed under 70% is actually a 75% exceedance level.

Upper Yakima River Basin





*Based on selected stations

June 1 reservoir storage for the Upper Yakima reservoirs was 685,000-acre feet, 94% of average. Forecasts for the Yakima River at Cle Elum are 118% of average and the Teanaway River near Cle Elum is at 128%. Lake inflows are all forecasted to be above average this summer. May streamflows within the basin were Yakima near Cle Elum at 150% and Cle Elum River near Roslyn at 144%. June 1 snowpack was 185% based upon 6 snow course and SNOTEL readings within the Upper Yakima Basin. Precipitation was 80% of average for May and 97% year-to-date for water. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2008

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Keechelus Reservoir Inflow (2)	MAY-JUL	118	126	131	142	136	144	92
	MAY-SEP	130	139	146	142	153	162	103
Kachess Reservoir Inflow (2)	MAY-JUL	109	114	118	141	122	127	84
	MAY-SEP	119	125	130	141	135	141	92
Cle Elum Lake Inflow (2)	MAY-JUL	410	430	440	133	450	470	330
	MAY-SEP	465	485	500	133	515	535	375
Yakima R at Cle Elum (2)	MAY-JUL	775	815	845	133	875	915	635
	MAY-SEP	850	910	950	133	990	1050	715
Teanaway R bl Forks nr Cle Elum	MAY-JUL	97	112	122	134	132	147	91
	MAY-SEP	102	117	127	134	137	152	95

UPPER YAKIMA RIVER BASIN
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
KEECHELUS		NO REPORT		
KACHESS		NO REPORT		
CLE ELUM		NO REPORT		

UPPER YAKIMA RIVER BASIN
Watershed Snowpack Analysis - May 1, 2008

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
UPPER YAKIMA RIVER	6	179	143

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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(2) - The value is natural volume - actual volume may be affected by upstream water management.
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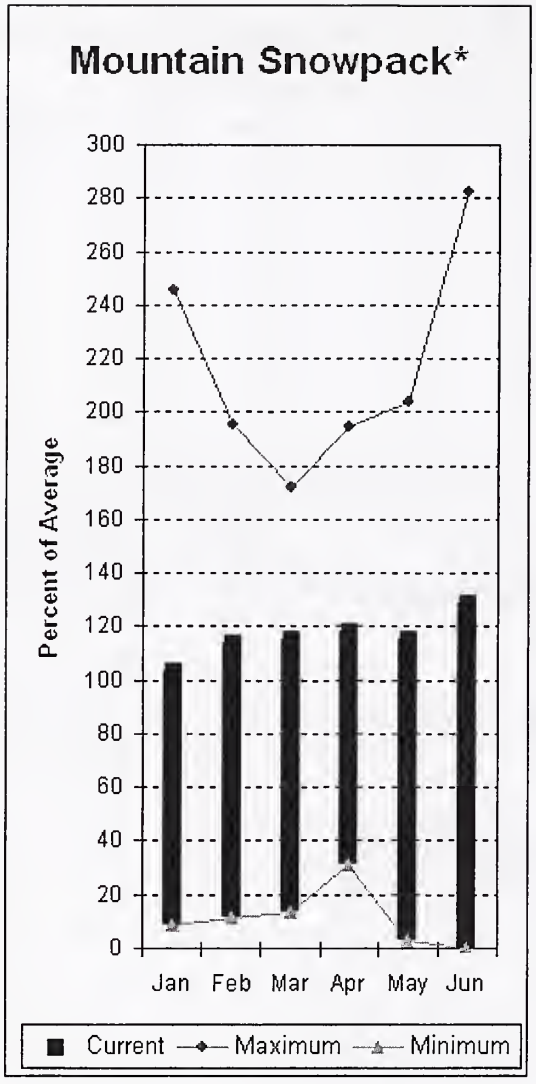
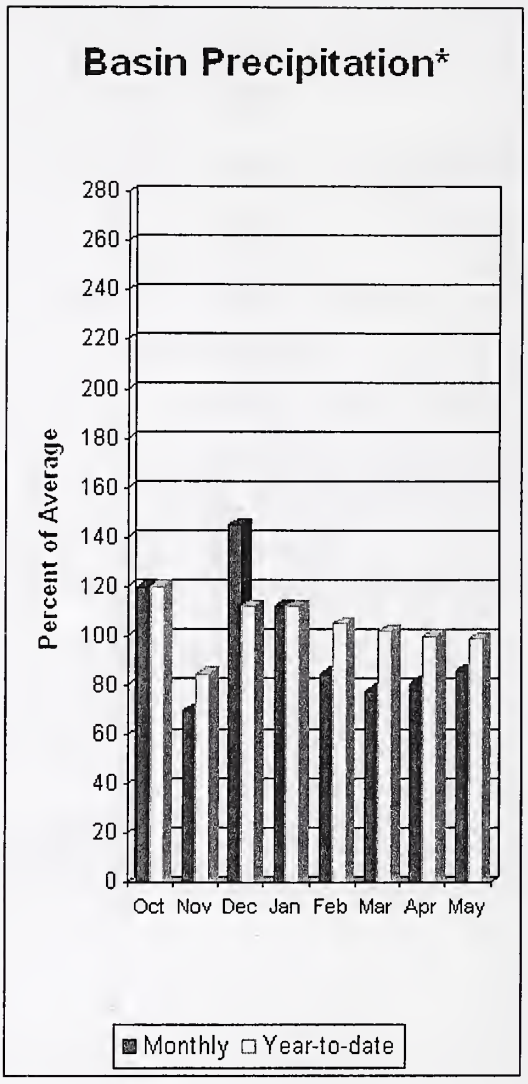
The value listed under 70% is actually a 75% exceedance level.

Lower Yakima River Basin





*Based on selected stations

May average streamflows within the basin were: Yakima River near Parker, 161%; Naches River near Naches, 155%; and Yakima River at Kiona, 128%. June 1 reservoir storage for Bumping and Rimrock reservoirs was 206,000-acre feet, 101% of average. Forecast averages for Yakima River near Parker are 114%; American River near Nile, 108%; Ahtanum Creek, 106%; and Klickitat River near Glenwood, 124%. June 1 snowpack was 129% based upon 6 snow course and SNOTEL readings within the Lower Yakima Basin and Ahtanum Creek reported in at 97%of average. Precipitation was 86% of average for May and 99% year-to-date for water. Temperatures were 2-4 degrees above normal for May and 1 degree below for the water year. Volume forecasts for Yakima Basin are for natural flow. As such, they May differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2008

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ====== Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Bumping Lake Inflow (2)	MAY-JUL	99	112	121	118	130	143	103
	MAY-SEP	109	123	132	117	141	155	113
American R nr Nile	MAY-JUL	86	95	102	113	109	118	90
	MAY-SEP	95	106	113	113	120	131	100
Rimrock Lake Inflow (2)	MAY-JUL	170	184	193	115	200	215	168
	MAY-SEP	210	225	235	115	245	260	205
Naches R nr Naches (2)	MAY-JUL	590	655	700	123	745	810	570
	MAY-SEP	650	725	775	123	825	900	630
Ahtanum Ck at Union Gap	MAY-JUL	15.0	19.2	22	105	25	29	21
	MAY-SEP	16.9	21	24	104	27	31	23
Yakima R nr Parker (2)	MAY-JUL	1540	1640	1710	126	1780	1880	1360
	MAY-SEP	1750	1860	1940	126	2020	2130	1540
KLICKITAT near Glenwood	MAY-JUL	107	118	125	125	132	143	100
	MAY-SEP	150	161	169	125	177	188	135

LOWER YAKIMA RIVER BASIN
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
BUMPING LAKE		NO REPORT		
RIMROCK		NO REPORT		

LOWER YAKIMA RIVER BASIN
Watershed Snowpack Analysis - May 1, 2008

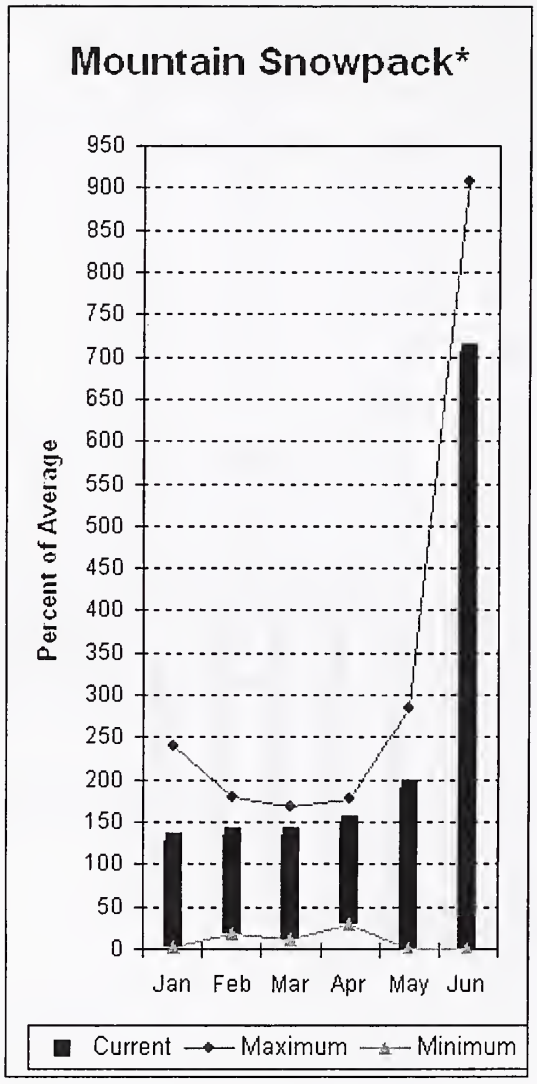
Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average

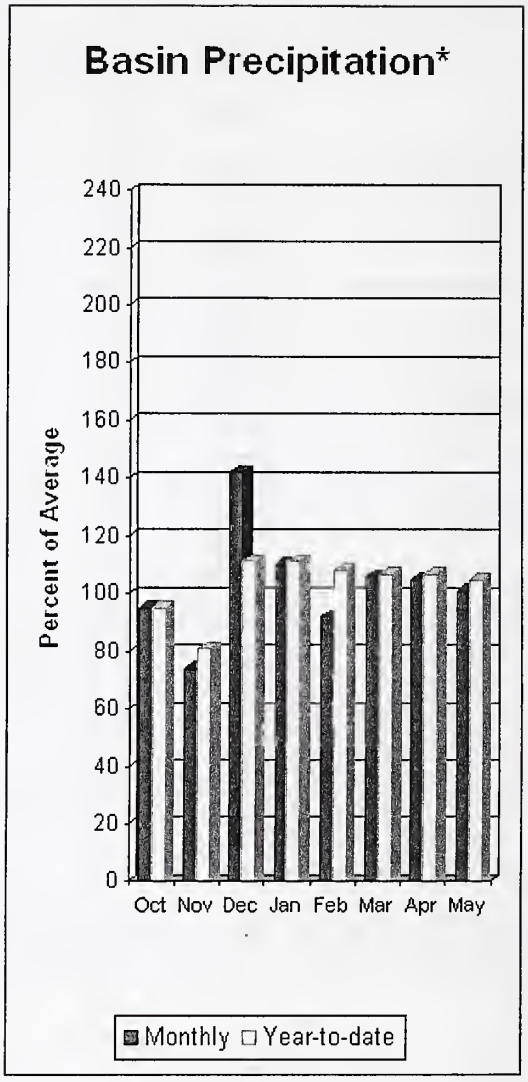
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level.
The value listed under 70% is actually a 75% exceedance level.

Walla Walla River Basin





*Based on selected stations

May precipitation was 101% of average, maintaining the year-to-date precipitation at 105% of average. Snowpack in the basin was 705% of average. Streamflow forecasts are 107% of average for Mill Creek and 109% for the SF Walla Walla near Milton-Freewater. May streamflow was 266% of average for the Walla Walla River. Average temperatures were 1-2 degrees above normal for May and 1 degree below average for the water year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2008

Forecast Point	Forecast Period	<<======= Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SF Walla Walla R nr Milton-Freewater	MAY-SEP	47	53	57	112	61	67	51
Mill Ck nr Walla Walla	MAY-JUL	14.2	16.4	18.0	122	19.6	22	14.7
	MAY-SEP	17.9	20	22	120	24	26	18.4

WALLA WALLA RIVER BASIN
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

WALLA WALLA RIVER BASIN
Watershed Snowpack Analysis - May 1, 2008

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
WALLA WALLA RIVER	2	546	190

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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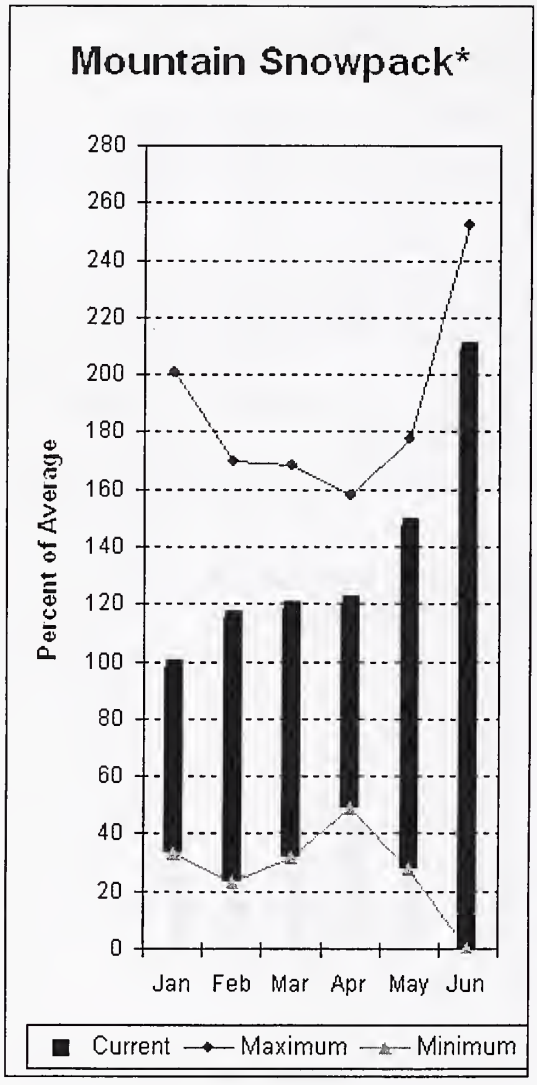
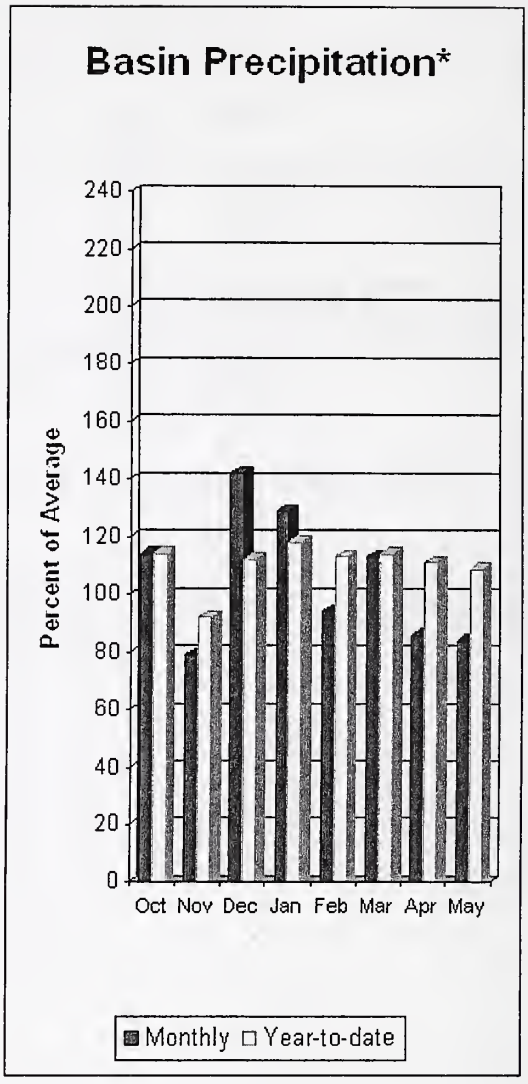
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level.
The value listed under 70% is actually a 75% exceedance level.

Lower Snake River Basin





*Based on selected stations

The June-September forecast is for 114% for Clearwater River at Spalding. The Snake and Grande Ronde rivers can expect summer flows to be about 108% and 135% of normal respectively. May precipitation was 84% of average, bringing the year-to-date precipitation to 109% of average. June 1 snowpack readings averaged 209% of normal. May streamflow was 118% of average for Snake River below Lower Granite Dam and 164% for Grande Ronde River near Troy. Dworshak Reservoir reported current storage at 91% of average and 80% of capacity. Average temperatures were 1-2 degrees above normal for May and 1 degree below average for the water year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2008

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Grande Ronde R at Troy	MAY-JUL	935	1100	1180	130	1260	1420	910
	MAY-SEP	1040	1230	1310	130	1390	1580	1010
Clearwater R at Spalding	MAY-JUL	6450	7250	7610	132	7970	8770	5770
	MAY-SEP	6780	7640	8030	130	8420	9280	6190
SNAKE blw Lower Granite Dam (1,2)	MAY-JUL	15800	18100	19100	114	20100	22400	16700
	MAY-SEP	17600	20200	21400	111	22600	25200	19300

LOWER SNAKE RIVER BASIN
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

LOWER SNAKE RIVER BASIN
Watershed Snowpack Analysis - May 1, 2008

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
LOWER SNAKE, GRANDE RONDE	10	264	147

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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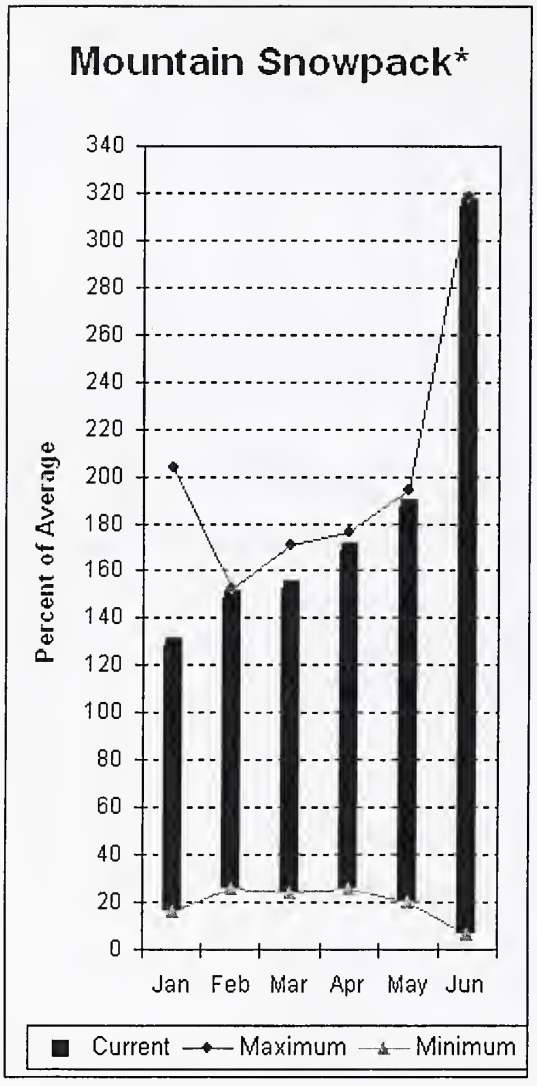
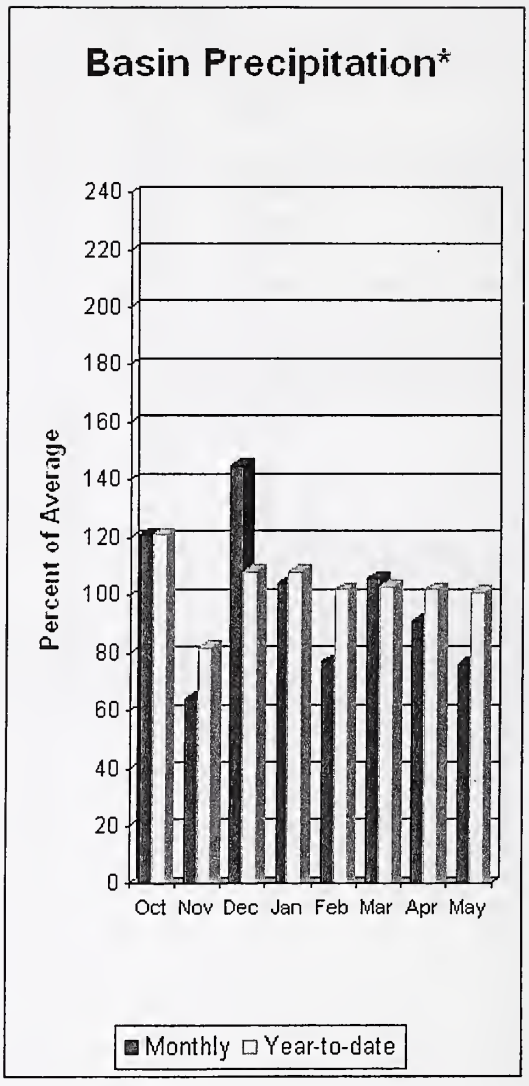
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level.
The value listed under 70% is actually a 75% exceedance level.

Cowlitz - Lewis River Basins





*Based on selected stations

Forecasts for June–September streamflows within the basin are Lewis River at Ariel, 135% and Cowlitz River at Castle Rock, 137% of average. The Columbia at The Dalles is forecasted to have 101% of average flows this summer. May average streamflow for Cowlitz River was 154% and 179% for Lewis River. The Columbia River at The Dalles was 117% of average. May precipitation was 76% of average and the water-year average was 101%. June 1 snow cover for Cowlitz River was 200%, and Lewis River was 376% of average. Average temperatures were near normal during May and 1-2 degrees below normal for the water year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2008

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Columbia R at The Dalles (1,2)	MAY-JUL	67000	73300	76100	108	78900	85200	70500
	MAY-SEP	77900	85400	88800	105	92200	99700	84500
KLICKITAT near Glenwood	MAY-JUL	107	118	125	125	132	143	100
	MAY-SEP	150	161	169	125	177	188	135
LEWIS at Ariel (2)	MAY-JUL	795	870	920	138	970	1040	667
	MAY-SEP	975	1050	1110	137	1170	1250	812
COWLITZ R. bl Mayfield Dam (2)	MAY-JUL	1560	1670	1750	140	1830	1940	1247
	MAY-SEP	1730	1920	2050	139	2180	2370	1478
COWLITZ R. at Castle Rock (2)	MAY-JUL	1950	2100	2200	135	2300	2450	1629
	MAY-SEP	2310	2510	2640	134	2770	2970	1972

COWLITZ - LEWIS RIVER BASINS
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MOSSYROCK	0.0	1003.2	1289.9	---
SWIFT	0.0	440.9	695.5	---
YALE	0.0	380.9	386.5	---
MERWIN	0.0	409.9	404.8	---

COWLITZ - LEWIS RIVER BASINS
Watershed Snowpack Analysis - May 1, 2008

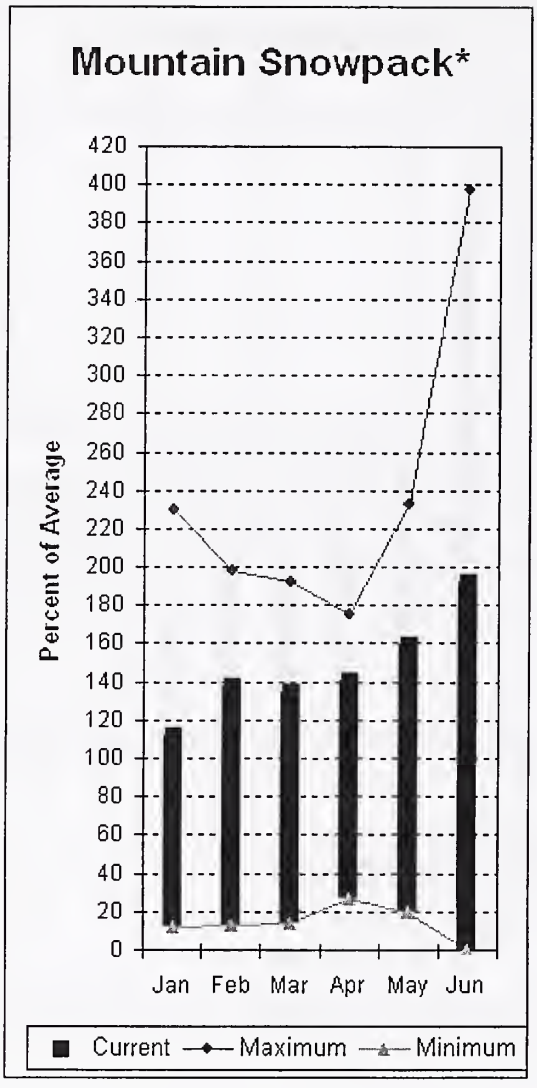
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
LEWIS RIVER	5	216	223
COWLITZ RIVER	7	174	151

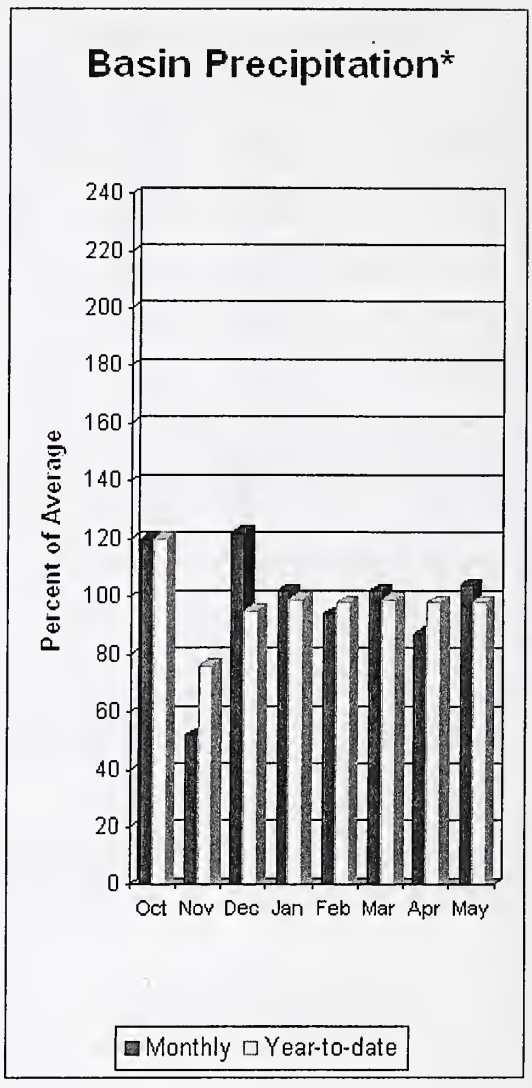
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level.
The value listed under 70% is actually a 75% exceedance level.

White - Green River Basins





*Based on selected stations

Summer runoff is forecast to be 135% of normal for the Green River below Howard Hanson Dam and 125% for the White River near Buckley. June 1 snowpack was 122% of average for the White River, 161 % for Puyallup River and 294% in the Green River Basin. Water content on June 1 at Corral Pass SNOTEL, at an elevation of 6,000 feet, was 31.7 inches. This site has a June 1 average of 23.1 inches. May precipitation was 104% of average, bringing the water year-to-date to 98% of average for the basins. Average temperatures in the area were 1-2 degrees below normal for May and 2 degrees below for the water-year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2008

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
WHITE near Buckley (1,2)	MAY-JUL	390	445	470	135	495	550	348
	MAY-SEP	510	570	595	135	620	680	442
GREEN R below Howard Hansen (1,2)	MAY-JUL	152	192	230	131	230	270	176
	MAY-SEP	180	220	265	131	260	300	202

WHITE - GREEN - PUYALLUP RIVER BASINS
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

WHITE - GREEN - PUYALLUP RIVER BASINS
Watershed Snowpack Analysis - May 1, 2008

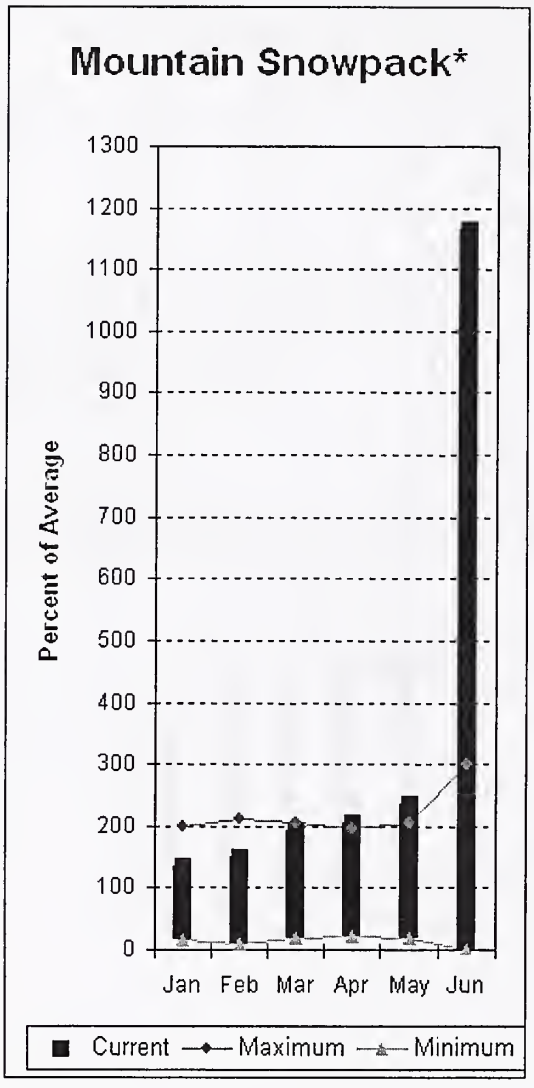
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
WHITE RIVER	3	133	117
GREEN RIVER	6	249	211
PUYALLUP RIVER	5	174	164

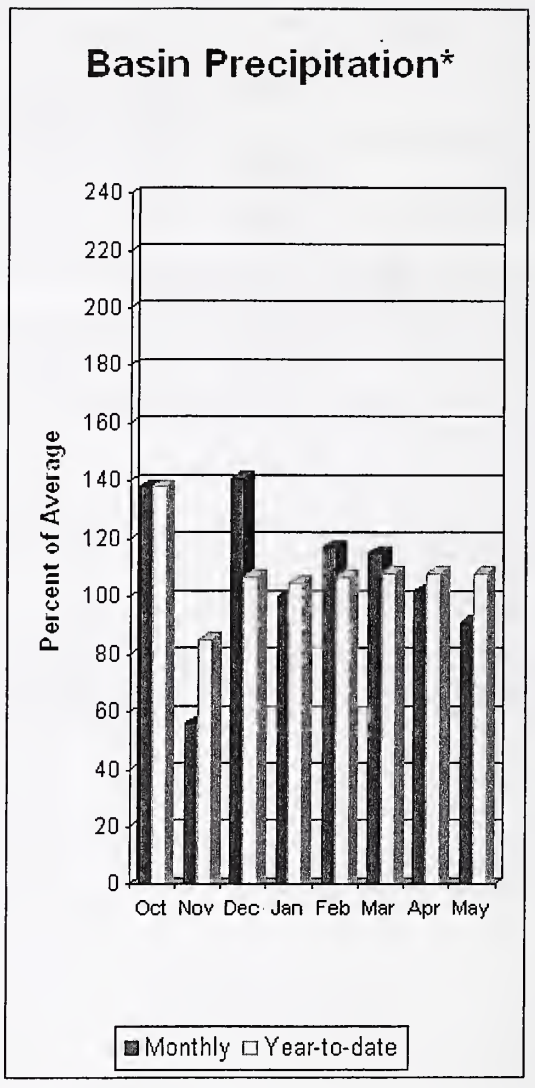
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level.
The value listed under 70% is actually a 75% exceedance level.

Central Puget Sound River Basins





*Based on selected stations

Forecast for spring and summer flows are: 177% for Cedar River near Cedar Falls; 175% for Rex River; 155% for South Fork of the Tolt River; and 206% for Cedar River at Cedar Falls. Basin-wide precipitation for May was 91% of average, bringing water-year-to-date to 108% of average. June 1 average snow cover in Cedar River Basin was 1259%, Tolt River Basin was 2867%, Snoqualmie River Basin was 276%, and Skykomish River Basin was 237%. Rex River SNOTEL site, at 3960 feet, had 51.1 inches of water content. Average June 1 water content is 6.1 inches at Rex River. Temperatures were 1-2 degrees below average for May and 2 degrees below normal for the water-year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2008

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
CEDAR near Cedar Falls	MAY-JUL	75	83	86	165	93	101	52
	MAY-SEP	84	92	98	166	104	112	59
REX near Cedar Falls	MAY-JUL	24	27	29	167	31	34	17.4
	MAY-SEP	27	31	33	165	35	39	20
CEDAR RIVER at Cedar Falls	MAY-JUL	46	64	77	164	90	108	47
	MAY-SEP	40	61	76	165	91	112	46
SOUTH FORK TOLT near Index	MAY-JUL	15.4	17.1	18.2	166	19.3	21	11.0
	MAY-SEP	16.5	19.8	22	167	24	28	13.2

CENTRAL PUGET SOUND RIVER BASINS
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

CENTRAL PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - May 1, 2008

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
CEDAR RIVER	4	345	435
TOLT RIVER	2	241	275
SNOQUALMIE RIVER	4	199	199
SKYKOMISH RIVER	2	148	152

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

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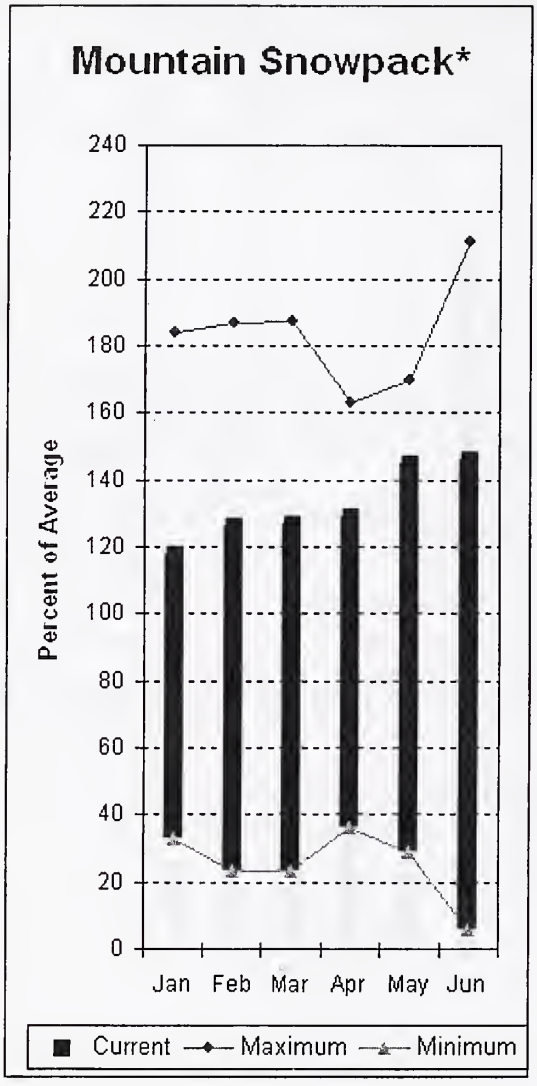
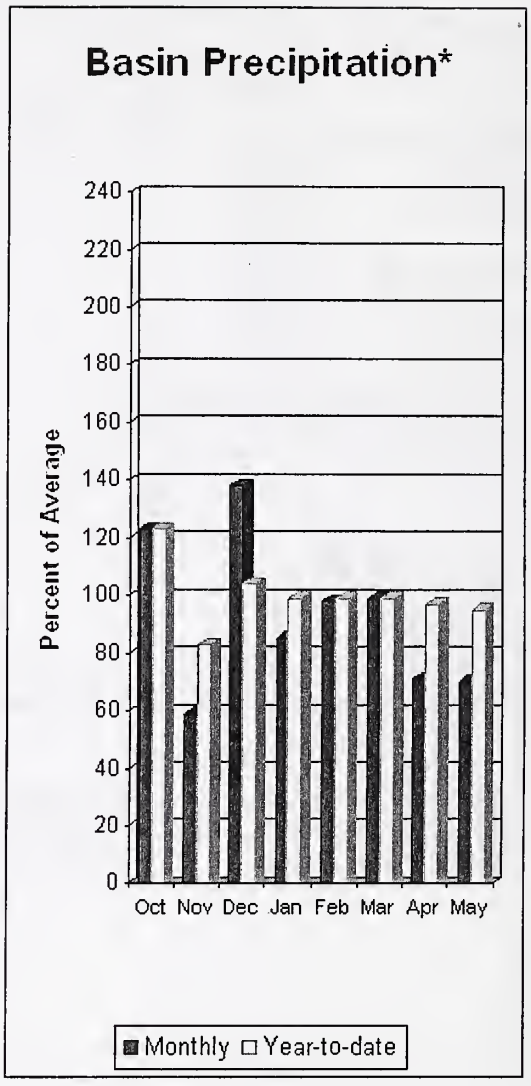
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level. The value listed under 70% is actually a 75% exceedance level.

North Puget Sound River Basins





*Based on selected stations

Forecast for Skagit River streamflow at Newhalem is 115% of average for the spring and summer period. May streamflow in Skagit River was 141% of average. Other forecast points included Baker River at 116% and Thunder Creek at 115% of average. Basin-wide precipitation for May was 70% of average, bringing water-year-to-date to 95% of average. June 1 average snow cover in Skagit River Basin was 109% and Nooksack River Basin was 183%. June 1 Skagit River reservoir storage was 99% of average and 74% of capacity. Average temperatures for May were 1-2 degrees below normal for the basin and 2 degrees below average for the water year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2008

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
THUNDER CREEK near Newhalem	MAY-JUL	225	245	255	120	265	285	212
	MAY-SEP	335	355	370	119	385	405	310
SKAGIT at Newhalem (2)	MAY-JUL	1700	1790	1850	115	1910	2000	1611
	MAY-SEP	2020	2130	2200	112	2270	2380	1964
BAKER RIVER near Concrete	MAY-JUL	655	730	785	115	840	915	684
	MAY-SEP	835	955	1040	115	1120	1250	906

NORTH PUGET SOUND RIVER BASINS
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
ROSS		NO REPORT		
DIABLO RESERVOIR		NO REPORT		

NORTH PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - May 1, 2008

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
SKAGIT RIVER	16	114	120
BAKER RIVER	0	183	0
NOOKSACK RIVER	1	185	198

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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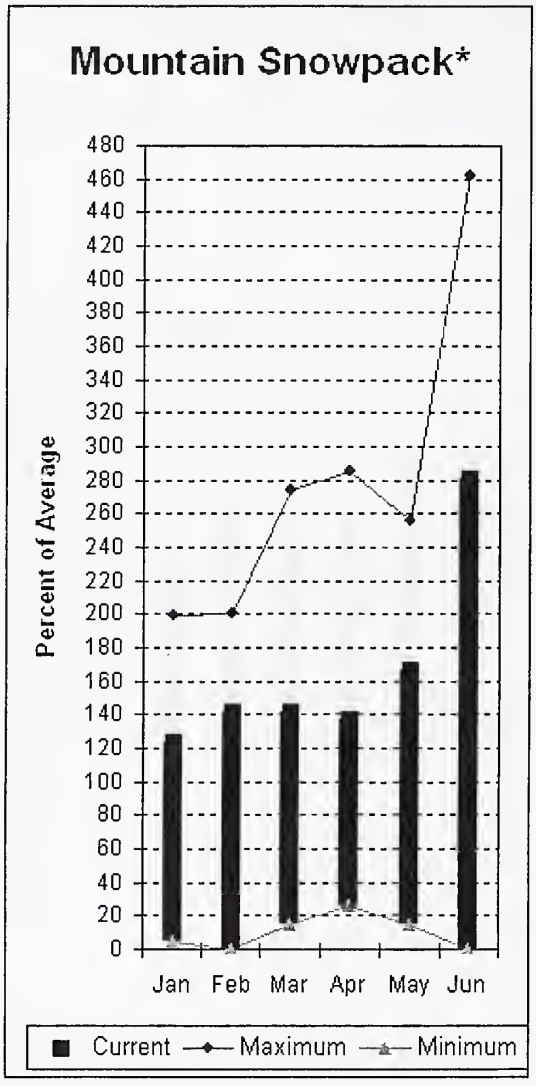
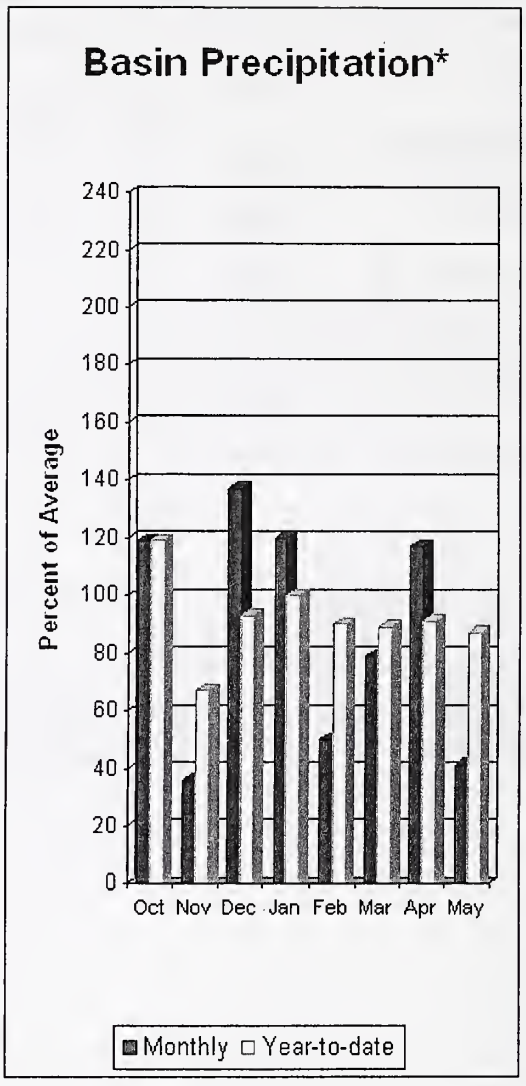
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level.
The value listed under 70% is actually a 75% exceedance level.

Olympic Peninsula River Basins





*Based on selected stations

Forecasted average runoff for streamflow for the Dungeness and Elwha rivers is 133% and 124% respectively. May runoff in the Dungeness River was 164% of normal. Big Quilcene and Wynoochee rivers should expect above average runoff this summer as well. May precipitation was 41% of average. Precipitation has accumulated at 87% of average for the water year. May precipitation at Quillayute was 2.13 inches. The thirty-year average for May is 5.51 inches. Olympic Peninsula snowpack averaged 281% of normal on June 1. Temperatures were 1-2 degrees below average for May and 2 degrees below for the water year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2008

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
DUNGENESS near Sequim	MAY-JUL	114	124	131	125	138	148	105
	MAY-SEP	137	152	162	123	172	187	132
ELWHA near Port Angeles	MAY-JUL	385	405	420	124	435	455	338
	MAY-SEP	485	510	530	125	550	575	423

OLYMPIC PENINSULA RIVER BASINS
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

OLYMPIC PENINSULA RIVER BASINS
Watershed Snowpack Analysis - May 1, 2008

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
OLYMPIC PENINSULA	5	156	166

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level.
The value listed under 70% is actually a 75% exceedance level.

NORTH CASCADES GLACIER PAGE 2008

North Cascades National Park Glacier Monitoring Program

The National Park Service began monitoring glaciers in North Cascades National Park in 1993 and Mount Rainier glaciers in 2002 (see the Mount Rainier Glacier Page). Goals for this program and additional data can be found at North Cascades National Park home page at http://www.nps.gov/noca/naturescience/glacial-mass-balance1.htm or contact Jon_Riedel@nps.gov or Jeanna_Wenger@nps.gov.

The four glaciers monitored are located at the headwaters of four watersheds, each with large hydroelectric dams (Figure 1). The glaciers represent a range in elevation from 8800 to 5600 feet, and a range in climatic conditions from maritime to continental. Methods include three visits annually to each glacier to measure winter accumulation and summer melt. Measurements are taken at a series of points down the centerline of the glacier (Table 1), and then integrated across the entire glacier surface to determine mass balance for the entire glacier. Figure 2 shows 2007 was the fifth consecutive year to have a negative net balance.

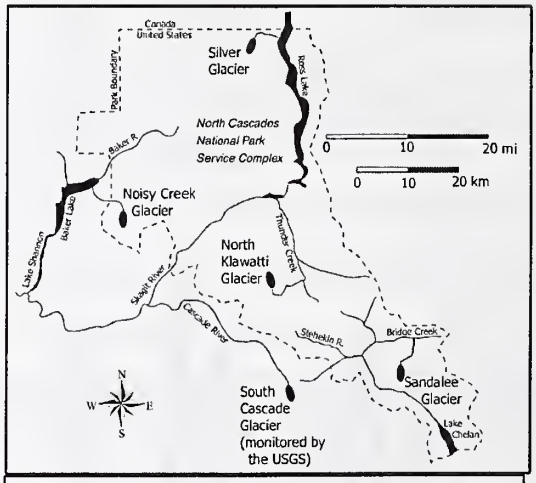


Figure 1. Glaciers monitored in North Cascades N.P.S. Complex.

Table 1 Glacier:	Elev. (feet)	Average Accumulation (inches W.E.)	2008 Accumulation (inches W.E.)	2008 Percent of Average
Noisy	**Entire Glacier**	**119**	**123**	**103**
Creek	6061	128	131	102
Density =	6035	133	133	100
0.5	5904	116	118	102
	5756	111	112	101
	5655	112	120	107
Silver	**Entire Glacier**	**94**	**122**	**130**
Density =	8420	109	122	112
0.50	8069	93	74	80
	7606	115	174	151
	7141	64	68	107
North	**Entire Glacier**	**113**	**116**	**102**
Klawatti	7665	115	112	97
Density =	7301	119	123	104
0.50	6901	118	132	112
	6396	102	104	101
	6094	90	91	100
Sandalee	**Entire Glacier**	**115**	**111**	**97**
Density =	7360	110	111	101
0.50	7344	117	105	90
	7147	112	115	103
	6717	125	113	90

Provisional Data.

Table 1. Table 1 presents this spring's provisional winter accumulation data, along with average values and percent of the 15-year average. The 2008 snow depths were measured on May 16th on the four glaciers. Measurements were delayed this year (from around May 1) because of persistent cool temperatures and continual snow storms. The provisional data show 2008 as an above average snow year. These data are tentative and will be revised after a July visit. Snow density of 0.5 was assumed to calculate water equivalent because no direct snow density measurements were taken. Densities are in fraction of water density. This year, two measurement locations on Sandalee Glacier were at higher than normal altitude positions which explains the "below" percent of average accumulation.

The 2007 estimates of glacial contribution to runoff for four watersheds are based on the mass balance measurements and GIS analyses to determine glacier area within 165 ft (50-meter) elevation bands (Table 2). Glaciers reduce the variation of flow in these watersheds by providing melt water from firn and ice during summer drought in dry/warm years and by storing water in excess snowpack during wet/cool years. Glacial contribution to stream flow in these watersheds varies by as much as 100% annually. Magnitude of glacial contribution to streamflow is large, but varies by the amount of glacial cover in each watershed. Thunder Creek is 13% glacierized; Baker River, 3%; Stehekin River, 6%; and Ross Lake, 0.9% (Post and others, 1971; Granshaw, 2002).

The glacierized area of a watershed primarily dictates the glacier contribution to runoff. However, the relative importance of glacial contribution to streamflow also generally increases from west to east. For example, glaciers annually contribute a higher percentage of meltwater to streamflow in the Stehekin watershed than in the Baker, despite the fact that the Baker is more highly glacierized. This is due to lower snowfall east of the hydrologic crest of the North Cascades.

Table 2	May-September Runoff (thousands acre-feet)				Percent Glacial Runoff to Total Summer Runoff		
	2007	mean	min	max	2007	min	max
Noisy Creek Glacier	1.5	1.5	1.2	1.9			
Baker River Watershed	**71.2**	**70.2**	**50.1**	**87.2**	**9.3**	**5.6**	**14.6**
North Klawatti Glacier	4.3	4.1	2.8	4.8			
Thunder Creek Watershed	**98.3**	**97.1**	**71.8**	**118.8**	**33.0**	**20.7**	**47.7**
Sandalee Glacier	0.5	0.5	0.4	0.7			
Stehekin River Watershed	**80.5**	**71.0**	**51.6**	**88.1**	**10.1**	**5.4**	**22.9**
Silver Glacier	1.1	1.0	0.7	1.3			
Ross Lake Watershed	**71.3**	**65.4**	**47.4**	**80.5**	**4.8**	**2.5**	**13.5**

Provisional Data

Table 2. Glacial contribution to summer stream flow (May 1 to Sept. 30) for four watersheds. Runoff units are thousands of acre-feet. Data from 1993-2007 except the Sandalee Glacier and Stehekin River Watershed (1995-2007).

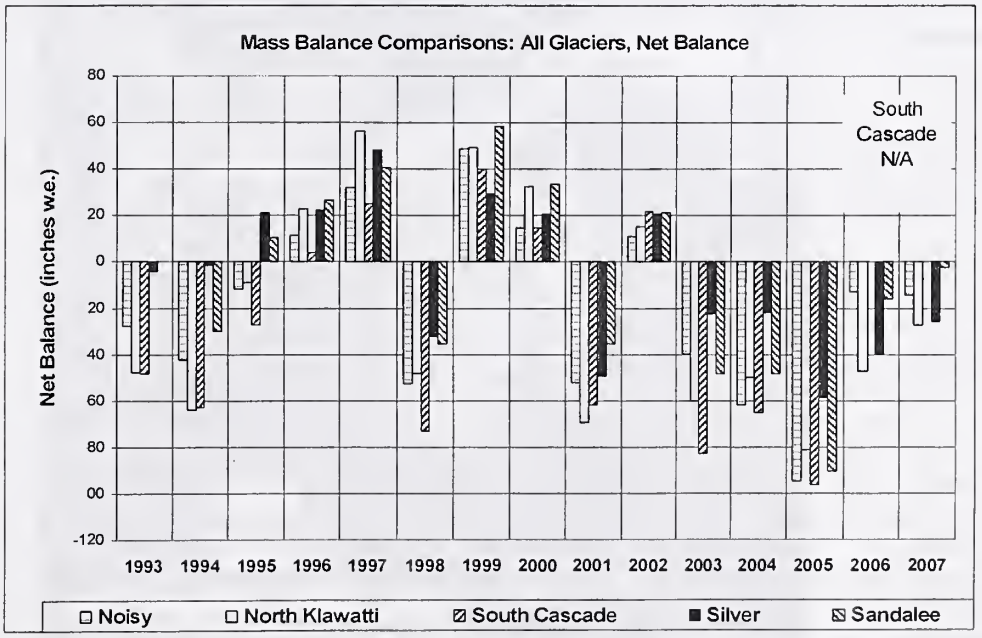


Figure 2. Net annual mass balance for the five glaciers monitored in the North Cascades.

MOUNT RAINIER GLACIER PAGE 2008

The National Park Service continues to monitor mass balance on Nisqually and Emmons glaciers, while tracking area and volume changes of all Mount Rainier glaciers on a 20-year cycle. The annual program includes field measurements of snow depth, density, snow and ice melt annual terrestrial photography, and 10-year remapping of the Nisqually and Emmons glaciers. This program is a cooperative venture between Mount Rainier National Park and North Cascades National Park.

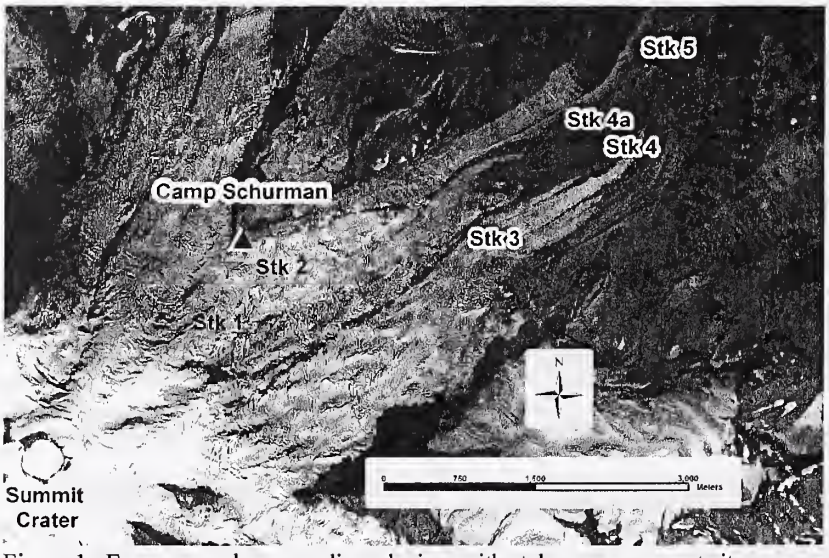


Figure 1. Emmons and surrounding glaciers with stake measurement sites.

Between April 25th and May 19th in 2008 we measured snow depths and placed ablation stakes between ~11,000 and 5,000 feet on the Nisqually and Emmons glaciers (Figures 1 and 2). We place a total of six stakes per glacier with the lowest two stakes placed in debris covered ice. Data collected thus far indicate 2008 was an above average snow year. On Mount Rainier, snow accumulation generally increases with altitude. The accumulation trend on the south side of the mountain increases with elevation up to ~7100 feet and then decreases above (Table 1). Accumulation on the Emmons Glacier generally peaks at ~10,000', our highest placed stake. Confidently measuring the maximum snow depth at our highest stake locations is consistently challenging in the spring due to very dense layers within the current years' snowpack. We will revisit these measurements in the summer months to confirm maximum snow depths.

We normally take measurements in early April for the lower elevation stakes and at the beginning of May at higher elevations. For the second year in a row

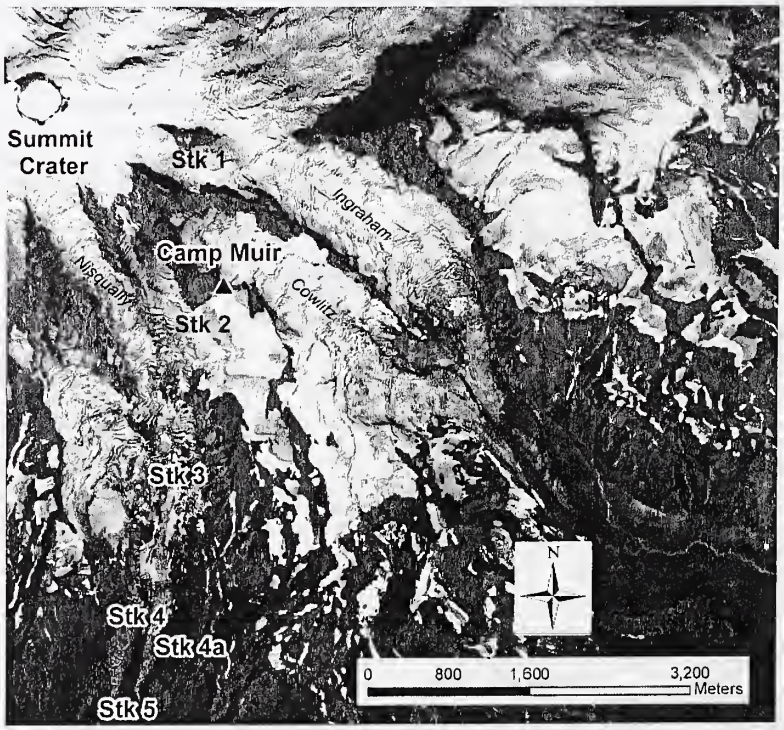


Figure 2. Nisqually and surrounding glaciers with stake measurement sites.

our collection dates have been delayed due to persistent cool temperatures and continual snow accumulation. Snowfall data at the nearby Paradise SNOTEL site indicate that our measurements on the lower elevation sites were taken at the time of maximum snowpack.

Table 1	Altitude	Accumulation (inches w.e.)					
	feet	2004	2005	2006	2007	2008	Average
Muir Snowfield & Nisqually Glacier	11,096	NA	NA	94	NA	NA	94
	9,711	89	59	105	92	90	87
	7,136	151	78	144	165	149	137
	6,201	98	55	118	91	145	101
	6,135	83	39	146	88	124	96
	5,833	67	20	118	75	NA	75
Paradise	5,121	72	35	84	70	106	73
Emmons Glacier	10,205	NA	NA	117	153	NA	135
	9,218	74	104	94	153	122	109
	6,462	65	27	85	57	83	63
	5,577	48	25	66	48	51	48
	5,593	36	32	48	51	52	44
	5,183	32	9	30	31	67	34

Provisional data

NA describes years with measurement not currently available

Table 1. Maximum accumulation (inches water equivalent) on Mount Rainier glaciers, for the years 2004 through 2008. Snow depths were probed at 1 to 11 points at each site on an elevation contour. Provisional Data.

We will return to the glaciers in mid July to confirm our spring snow depths, take additional density measurements, and record snow melt. On a fall visit (late September/early October) we will record final ablation measurements from the stakes. The end result of these seasonal measurements is the net balance, which is the sum of winter balance (always positive) and summer balance (always negative). The cumulative net balance allows us to see the overall trend in glacier health (Figure 3). For more information contact Jon_Riedel @nps.gov or Jeanna_Wenger@nps.gov.

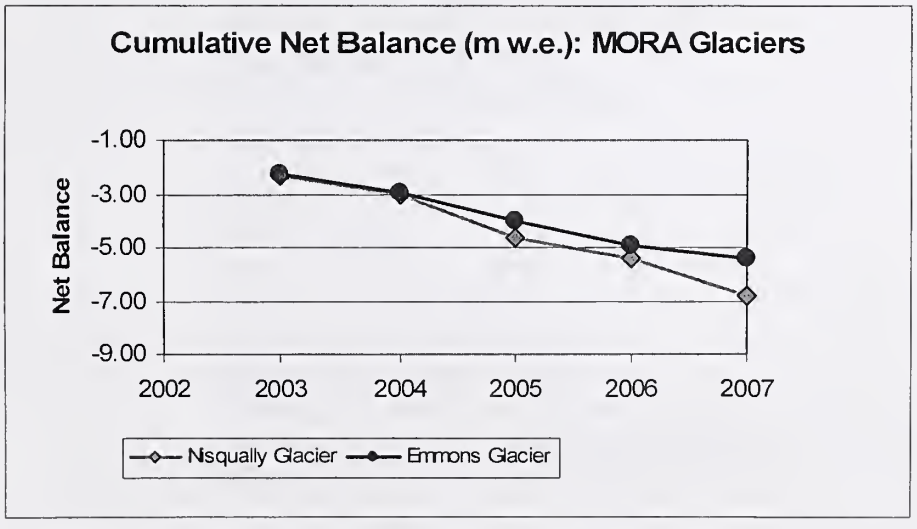


Figure 3. Cumulative net balance for the Nisqually and Emmons glaciers. Units are in meters water equivalent.

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The Following Organizations Cooperate with the Natural Resources Conservation Service in Snow Survey Work*:

Canada	Ministry of Sustainable Resources
	Snow Survey, River Forecast Centre, Victoria, British Columbia
State	Washington State Department of Ecology
	Washington State Department of Natural Resources
Federal	Department of the Army
	Corps of Engineers
	U.S. Department of Agriculture
	Forest Service
	U.S. Department of Commerce
	NOAA, National Weather Service
	U.S. Department of Interior
	Bonneville Power Administration
	Bureau of Reclamation
	Geological Survey
	National Park Service
	Bureau of Indian Affairs
	Recourse Conservation & Development Councils
Local	City of Tacoma
	City of Seattle
	Chelan County P.U.D.
	Pacific Power and Light Company
	Puget Sound Power and Light Company
	Washington Water Power Company
	Snohomish County P.U.D.
	Colville Confederated Tribes
	Spokane County
	Yakama Indian Nation
	Whatcom County
	Pierce County
	Kalispel Tribe of Indians
	Spokane Indian Tribe
	Jamestown S'klallum Tribe
Private	Okanogan Irrigation District
	Wenatchee Heights Irrigation District
	Newman Lake Homeowners Association
	Whitestone Reclamation District

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Washington Water Supply Outlook Report

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Spokane, WA